

*Journal of*  
**COLLEGE PLACEMENT**

THE INTERNATIONAL MAGAZINE OF PLACEMENT AND RECRUITMENT



THE GENERAL ELECTRIC GRADUATE OPINION SURVEY  
ARMSTRONG SHOWS THE WAY FOR YOUNG SCIENTISTS  
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BEGINNING: A MODEL PROGRAM FOR CORPORATE RECRUITMENT

*March, 1957*

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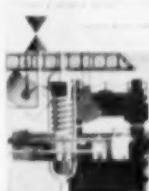


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One of the principal men who developed x-ray television — called TVX for short — is Dr. John E. Jacobs, Manager of the Advanced Development Laboratory of General Electric's X-Ray Department in Milwaukee, Wisconsin.

### Jacobs' Work Is Important, Responsible

As an electronics specialist, Dr. Jacobs' work in the past has been devoted to the study of photoconductors—substances whose properties change under the influence of radiation — and the use of x-ray in industrial inspection. This in turn led to his development of the x-ray-sensitive camera tube used in TVX.

His present administrative duties with the Advanced Development Lab allow him more time for teaching others what he has learned. He now teaches the second-year graduate course at Northwestern in vacuum-tube networks, and has recently been named McKay Visiting Professor for 1957 by the University of California at Berkeley, where he will give a two-week series of lectures on photoconduction.

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*Educational Relations, General Electric  
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**DR. JOHN E. JACOBS** joined General Electric full time in 1950, after receiving his B.S. in electrical engineering in '47, his M.S. in '48, and his Ph.D. in '50, all at Northwestern Univ. He served in the Navy in World War II, and worked part time at General Electric while in college.



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# *Journal of* COLLEGE PLACEMENT

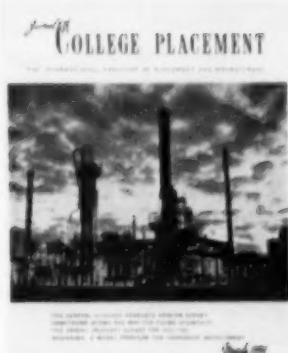
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MARCH, 1957

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The industrial growth which is represented by the cover subject is made possible by talented college graduates working in many fields. Research, Development, and Engineering create facilities. Manufacturing manages them. Merchandising sells the resulting products. Assisting young college graduates to find opportunities in these fields is an important function of the college placement program.

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THE COLLEGE PLACEMENT PUBLICATIONS COUNCIL, INC.

The Journal of College Placement is the quarterly publication of the Council, devoted to the interests and activities of the eight Regional Placement Associations of the United States and Canada.

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# how are last year's engineering graduates getting along at Westinghouse?

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# Westinghouse

# **Standards of Practice - - a goal for research**

Enthusiasm among many of the eight Regional Placement Associations for the undertaking of research projects is most commendable. It is a challenging opportunity for the evaluating of our techniques, but also an open invitation to "ride off in all four directions at the same time."

By happy coincidence, the unifying of the objectives of the Regional Associations under a common constitution comes at a time when a number of their committees are looking for guidance in the choice of worthy research efforts. The decision as to which should undertake what is an academic matter; the correlation of their efforts is of vital importance.

That placement may have "come of age" to our own satisfaction is one thing. Whether the presidents of our individual institutions share that conviction is quite another. Until they recognize that allocations for physical facilities, staffing, and adequate placement budgets are, in effect, invaluable contributions to the institution's public relations, there is little likelihood of substantial support. In deference to those of our administrators who ask, realistically,—"Why do you need more space? How do you know your techniques are good? What are the common objectives of your field? Should counseling be group or individual? Are you educating students or simply running an employment agency?"—there must be well-founded answers.

We are in need of an over-all standard of practice; a manual, perhaps, of commonly accepted and tested techniques which could serve as a measuring stick to the established placement office and a guide to the new officer. Equally important, it would offer every college president a frame of reference that would serve to upgrade our offices now struggling with sub-standard conditions. If the Regional Associations might address themselves to this need, the Council would logically correlate the findings and undertake any associated publishing. Once the groundwork of common (and effective) practice has been established, the possibilities for additional research on a wide front are innumerable.

The other side of the coin, the area of research for business and industry, offers a like challenge. In spite of the universal recognition of cooperative research jointly supported by industrial firms and yielding results benefiting all, in spite of the crying need for better criteria in our search for predictability in leadership, most approaches to personnel research in this area have been piecemeal. Like their college counterparts, the recruiters have exhibited the very human tendency of trying to perfect the kitchen before the walls of the house have been erected. The potential benefits of a research foundation whose efforts would be directed toward better methods of selection are incalculable.

In the months remaining before our representatives meet in annual session at Columbus, considerable progress might be attained through preliminary discussions between Regional representatives and their research committees. From these could come an understanding of basic practice and a format for research at the national and international level.

By

**EVERETT A. TEAL**  
*President  
College Placement Publications  
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## LETTERS

### Pointers from Auntie Mame

Sir:

I had sent a copy of the October issue of the JOURNAL OF COLLEGE PLACEMENT to a relative, my own "Auntie Mame", aged eighty-eight, and living in Evansville, Indiana. Not only is she vitally interested in all the family doings, but she is particularly interested in anything related to education because of a lifetime spent in that field. Auntie Mame some sixty years ago started a training program for kindergarten teachers in Dallas, Texas, and not only had her own school there (the Mary King Drew) but headed up the training program at Southern Methodist University.

Her comments delighted me:

"You write like a pedagogue who has made a scientific study of curriculum problems, but I think there are a few points you have overlooked. One excuse for the liberal arts program not fitting a girl for a business job is that until the last twenty-five or thirty years, comparatively few college graduates wanted one. It will take time to realize that now many graduates work even when there is no economic need. Summer courses in shorthand, typing, etc., can always be taken if a girl plans ahead. Advisers are partly to blame for not helping in this situation.

"You see, there aren't enough hours in a day for all the subjects which many authorities consider imperative in a college education. Then there's a difference of opinion on 1) the relative importance of the subjects, and 2) at what level each should be introduced. I have worked on many committees tackling the difficulties of curriculum planning, a subject which, so far, has never been resolved."

Margaret McConnell  
*Personnel Manager, Time, Inc.*



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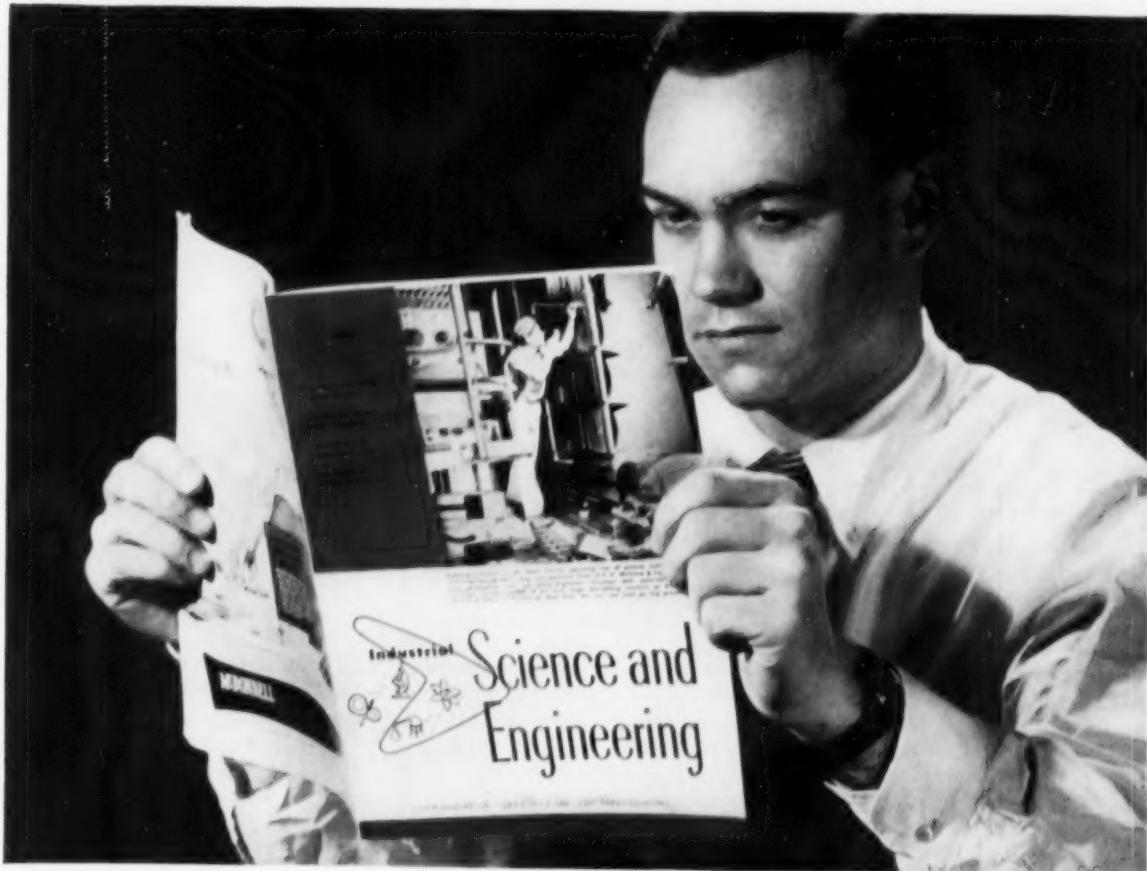
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*Seldom does an industry make the effort to conduct a truly searching survey concerning the attitudes of its college graduate employees toward the institutions and courses which have prepared them for their careers. The Journal is pleased to be among the first to present the results of just such a survey in depth as carried out by General Electric.*

### *13,586 Graduates Report —*

## **What They Think of Their Higher**

**T**HE General Electric Company has established three basic purposes for its policy of educational support:

1. The development of new and more effective manpower; 2. The development of new knowledge through better teaching and more adequate research; and 3. The maintenance of the best possible social, economic, and political climate in which industry can grow and progress.

To promote an educational-relations program that will realize these desired objectives, it is necessary to discover, through study and research, the impact of various types of education upon the development of managerial and professional skills. The Company's own large number of college-trained personnel provided a ready field for such an investigation.

By careful analysis of the testimony of a large number of individuals as to the skills and strengths received or developed through their college experience, the Educational Research Section of Educational Relations

Service endeavored to obtain a better understanding of the areas of college teaching most valuable to men and women in corporate enterprise.

Although it is not in the province of the American business corporation to plan or direct the establishment of college curricula, answers to the questions asked in this survey—thoughtful replies based upon actual personal experiences—may aid administrators and faculty members in the evaluation of academic programs. Thus it may be possible to focus attention on those areas of college study that tend, more than others, to promote the best joint interests of college campus and business office.

The development of this information within the General Electric organization does not signify that it is the complete or all-inclusive sampling necessary to pass judgment on all college programs of study. The nature of the corporate business is such that personnel selected from colleges must have specific educational qualifications and should not be considered, therefore, as

a complete cross-section of all college graduates. Moreover, the highly developed interest of the General Electric Company in scientific research and engineering progress undoubtedly places more emphasis on the fields of science than might be found in industrial organizations of different character. Nonetheless, the college-graduate personnel of the General Electric Company does express a high degree of interest in things academic and has an abiding enthusiasm for the continued growth and improvement of the American system of higher education. Original plans for this survey called for interrogation only of the liberal-arts college graduates employed by the General Electric Company. After careful consideration, and to avoid a second mailing of questionnaires in the event it later seemed desirable, the same questionnaires were sent to all college graduates employed by the Company. As these were returned, they were arranged according to a preliminary classification, by college degrees, in engineering and non-engineering categories.

# Education

Each group was tabulated separately and the replies were analyzed in depth.

Upon the return of as many completed forms as could reasonably be anticipated (approximately 60.4 per cent of the total college-graduate personnel), the non-engineering group was further divided. The first division was made according to the type of undergraduate college degree (i.e., Bachelor of Arts, Bachelor of Science, degrees in Business Administration, and degrees in Education). The second division was made according to the type of position with the Company (i.e., whether now engaged in technical or non-technical work). Extreme difficulty was encountered in formulating this second classification. However, for the purposes of the study, each reported position was assessed as "technical" if the work was related to the direct application of science or engineering to the business process. Otherwise the person was listed as a non-technical employee.

**T**HIS study, prepared under the direction of the Consultant—Educational Research, is the culmination of a long-time interest on the part of many components and individuals in the General Electric Company in those features of a college education which lead into the development of managerial and professional skills and responsibility, and to subsequent personal satisfactions of a related nature. In brief, it was a careful attempt to have college graduates in the General Electric work force evaluate their higher education.

The purpose of the study was twofold. It was hoped that the results, made available to the administrations and faculties of institutions of higher learning, might assist them in guidance and curricula planning. Simultaneously, these results should be useful in testing and revising the Company's machinery for recruiting and manpower mobilization. So far as can be determined, no similar study of a comparable sample has ever been conducted.

The source of the data has to a marked extent been the thoughtful comments of the college-educated men and women of General Electric. At the time of the survey, this group numbered more than 24,000. Today the number approximates 27,000 individuals. The responsible positions which they occupy continue with each passing year to call upon an interesting and complex blend of skills and academic disciplines, both technical and non-technical.

It is hoped that the study will make a contribution to the task of educating men and women for rewarding and useful careers in industry and to the complementary task of mobilizing and utilizing them to the greatest advantage of individuals and Company alike. In a real sense it continues the long period of co-operation between the colleges and universities of the nation and the General Electric Company.

*Kenneth J. Patrick*

Manager—Educational Relations

A similar procedure was employed for the engineering group, which was divided into four major categories, according to degrees: Electrical Engineering, Chemical Engineering, Mechanical Engineering, and Other Engineering Degrees.

For this study of the college-graduate personnel of the General Electric Company, all employees holding degrees from accredited colleges and universities as of October 1, 1955 were queried. The representativeness of the group is shown by the fact that the responses came from

managerial, professional, scientific, secretarial, and clerical employees. Less than five per cent of the total responses came from women. Position data provided by respondents clearly indicated that replies to questions were based generally upon the individual's own evaluation of his success with the Company.

Length of service with the Company is of interest. In the non-engineering group, the average length of service was 7.4 years, ranging from one year to more than 35. The engineering group averaged 11.49 years, with

five per cent indicating service in excess of 30 years.

A grand total of 14,147 questionnaires was returned. 6,429 (45.4 per cent) were from non-engineering graduates, and 7,157 (50.6 per cent) were from engineering graduates. 561 (4.0 per cent) were incomplete or otherwise defective for analytic purposes, leaving 13,586 as a working total. On the basis of undergraduate college degree earned, the respondents can be divided as follows:

Engineering Degrees	Per Cent	Non-Engineering Degrees	Per Cent
Electrical	51.1	Bachelor of Arts	32.8
Chemical	7.8	Bachelor of Science	25.8
Mechanical	29.3	Business Administration	38.1
Others	11.8	Education	3.3

A further breakdown, based upon the type of job held at General Electric, provides the following data:

	Engineers	Non-Engineers
On technical work	69.3 per cent	32.5 per cent
On non-technical work	30.7 per cent	67.5 per cent

In order to avoid confusion, the above-described respondents will be referred to in succeeding pages by means of the following terminology:

Respondents holding engineering degrees will be called Engineering Graduates.

Those holding non-engineering degrees will be called Non-engineering Graduates.

Respondents employed in technical occupations will be called Technical Employees.

Those employed in non-technical occupations will be called Non-technical Employees.

The study was undertaken in the hope that, from the testimony of college-graduate employees of General Electric, some relationship could be derived between the respondents' academic and extra-curricular college careers and their subsequent success and satisfaction in their jobs and leisure activities. The findings of this survey, with statistics included, are described in detail on the pages that follow. However, the unusual degree of unanimity of opinion from the group queried

justifies a brief summary of the major results.

Four subject areas in the college curriculum were considered to be extremely valuable, regardless of the academic background or type of employment of the respondent, in contributing to career success. English communication both written and oral was reported high on the list. Non-engineering respondents placed this subject area first, while engineers rated it second only to Mathematics, which is also a communication tool. Other subject areas reported as important for career success by both groups of respondents included Physics, Economics, and Mathematics.

The least valuable subject areas, judged from a career standpoint alone, were felt to be History, Foreign Language, miscellaneous sciences (Biology, Botany, Geology, etc.) and certain social sciences (principally Government and Economics). Some indication was offered that techniques of teaching certain courses left much to be desired, particularly in the social science area, where, it was felt, attention was often directed to theory at the expense of practical applications.

#### Over-All Value Not Included

It is interesting to note as well that engineers often reported certain engineering courses as "least valuable," particularly if such courses were not in line with interests and occupations. It should be borne in mind that these subject areas were reported as least valuable from the career standpoint only, there being no indication of their over-all value to the educated man.

This last qualification is brought home even more dramatically by the fact that some of these same courses ranked among the most important from the standpoint of value in leisure time. Both engineers and non-engineers reported English Liter-

from the leisure-time point of view. Other courses noted by both groups as valuable in this respect included History, Science and Engineering, Economics, Physics, Mathematics, and Philosophy. As might be expected, the liberal-arts graduates tended to indicate a greater breadth of "value courses" in the non-science areas.

When asked to name the program of studies most recommended for success in a business career, respondents gave almost equal emphasis to the four major study areas (Sciences, Social Sciences, Humanities, and Business). Except for differences in ranking as to importance, survey respondents indicated that a good collegiate program for business management training should include basic work in English, Science and Engineering, Mathematics, Economics, and General Business. Liberal-arts graduates also stressed the fundamental value of work in Psychology and the Humanities. All of this can be interpreted as a strong vote of confidence for a broad liberal education.

Engineers indicated that they participated quite heavily in extra-curricular activities, even more so than the liberal-arts graduates. The figures were 93.05 and 88.01 per cent respectively. Those who did not so participate were prevented generally by financial problems demanding a heavy outside work load, full-time employment causing attendance at night school, or early marriage and its attendant responsibilities.

Athletics, social groups, and professional associations were the most important types of outside activity enjoyed. As to the value of such pursuits in building a later life career, 70.94 per cent of the engineers felt that certain benefits were realized as compared to 65.39 per cent of the liberal-arts graduates. Particular

(Continued on page 148)



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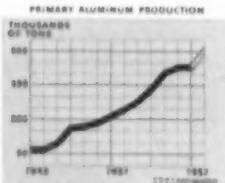


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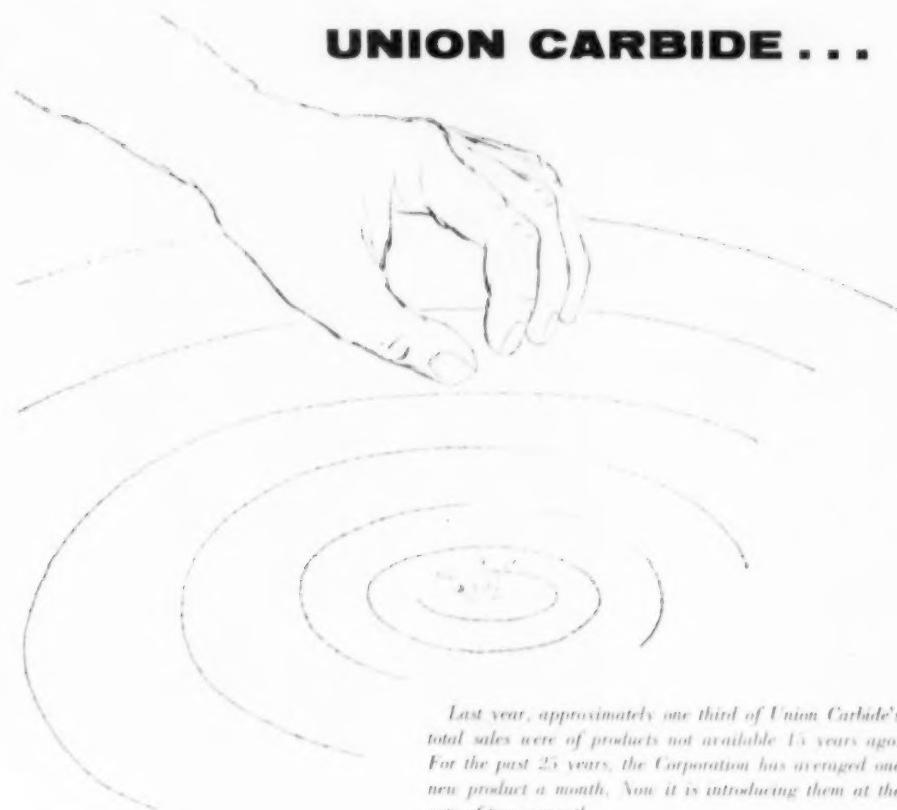
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# "WE'RE IN THIS TOGETHER"

*Analyze a good placement operation and you'll find behind it the enthusiastic support of a college president. Here one speaks for the values inherent in institutional support for the man behind the "hiring line."*

The subject, "We're in This Together," is a companionable way of setting the mental stage for a discussion of communications between industry and the campus through placement.

Whereas the implication of "being in this together" could be that of facing a solid wall of common problems jointly, I choose rather to interpret it as pointing up common opportunities for a reciprocally helpful exchange of ideas and services.

A corporation college relations supervisor with whom I have corresponded described the interdependence between colleges and universities and business and industry in these words, "We

depend upon you to furnish us with the kind of people we need. You depend upon us to develop your graduates at the end of their college careers."

The campus office which reaches a communications arm out toward industry is the placement service. Its chief points of contact are the personnel offices and the college relations offices of companies and corporations.

We would all agree, I am sure, that while leaders in your Association and their counterparts over the country have brought campus and business much closer together in recent years, there is as yet no basis for relaxing our efforts for further improvement.

Much has been accomplished since the first college and university placement offices were established in the first quarter of this century. They were then, almost without exception, set up to assist students in finding teaching positions.

There has been an evolution from teacher placement to a more inclusive service. The trend is also away from several placement offices, one in each school on the campus, to a single central office. This trend is good according to my observations and experience. Greater efficiency results. The handicaps of size and volume of business can be overcome by the director and



By DR. E. N. JONES  
President,  
*Texas Technological Institute*

*From an address presented  
to the Southern Placement  
Association*

his staff. By showing a warmth born of real devotion to the job, they can make contacts with the students on the one hand and company representatives on the other seem warm and personal, rather than remote and "assembly line" in nature as size increases.

This responsibility on campus is, however, not entirely that of the placement director. A good portion falls upon the president of the institution. His most tangible means of showing approval and support of placement activities is by providing an adequate budget. Providing good physical facilities and an ade-

quate and efficient staff are budget responsibilities.

It is, in my opinion, nothing more nor less than good business for a college to provide and support a good placement service. If company employment representatives are provided comfortable and nice (but not extravagant) interview rooms and efficient handling of contracts, they naturally translate that favorable impression to the institution in general. Furthermore, the senior or other interviewee is more likely to be evaluated as a quality product in such an atmosphere.

But that is not all. The company representative will carry better reports back to the home office from a campus where he has been efficiently served than he will from a campus where he was shunted to a hallway for conferences with students whose interview schedules were confused and delayed by inefficient handling in the placement office. Despite the danger of opening myself to the accusation of harboring ulterior motives, I submit that good impressions, leading to good reports to management, will the more likely lead to good financial support. In addition to serving its constituents well, a college or uni-

versity also thus serves itself well.

As a means of setting up an exchange on how we can better function since we are "in this together," I resorted to the always unwelcome questionnaire. The response was very good. Eighty per cent were returned.

The questionnaire was organized around two main reciprocal categories with the following outline:

I. SUGGESTIONS TO INDUSTRY FOR ASSISTANCE TO EDUCATION — *Some Things Industry Can Do.*

1. Scholarships.
2. Grants to worthwhile students.
3. Surplus property from industry.
4. Summer employment for faculty.
5. Professorships - support by endowment.

II. HOW CAN COLLEGES ASSIST INDUSTRY? — *Some Things Colleges Can Do.*

1. Strive to remove student deficiencies in certain fields, such as English, mathematics, and the sciences.
2. Make better provision for recruiting through improved placement services. How can this be accomplished?
3. Ways and means of improving communications between colleges and universities and business and industry.

**What Industry Can Do**

I. Scholarships — There was unanimous approval of the practice of establishing scholarships. The accompanying comments were clear and self explanatory such as:

"I favor only if no strings are attached."

"Selection and administration should be by the college."

"Provided recipients are not obligated to go to work for the benefactor."

The suggestion that *matching funds* should accompany scholarships was included in several responses. It is a known but too frequently unrecognized fact that every student, irrespective of the amount of tuition he pays, calls for additional funds to provide his instruction. In private institutions tuition covers 60 to 65 per cent of such cost, whereas in state-supported institutions in Texas, for example, tuition and fees cover 1/9 to 1/10 of the total expended, which averages about \$500, per year per student.

In summary, scholarships are universally favored. Those who commented on operational procedure felt that a clear-cut agreement should be arrived at between the donor and the college, that the administration of scholarships and the selection of beneficiaries should be by the college, that the recipient should not be obligated to work for the benefactor and that the practice of including matching funds is to be commended.

2. *Grants to worthy students* — The favorable reaction to grants was practically unanimous, but a little less strong than that favoring scholarships. Grants are more restricted, being limited generally to students particularly qualified to do advanced work. While designed primarily for graduate students, outstanding seniors occasionally can qualify.

Restrictions similar to those listed for scholarships were repeated, such as the student being selected by the college and that he not be obligated to work for the donor.

Two quite pertinent comments are quoted:

"I favor if adequate faculty supervision is available for the grantee," and "When grants are directed toward solving problems of wide application, I would favor; when directed toward solving a one-industry problem, I would question."

Under neither scholarships nor grants was the question of amount raised. May I therefore insert a personal opinion that a smaller rather than an extremely large amount to a given student is to be preferred. I believe, for example, that a \$500 scholarship to each of two well chosen individuals is a wiser use of money than a \$1,000 scholarship to one student.

3. *Surplus property from industry* — While generally registering a favorable reaction, this suggestion did not elicit too much enthusiasm. One questionnaire stated, "With the rapid technical advances, most industrial surplus is so obsolescent that it is antiquated." Still another commented, "If it's not junk."

The belief that the autonomy of the institution should be safeguarded again cropped out in, "I favor only if title to property is unconditional and absolute, empowering the educational institution to use the property as it sees fit."

4. *Summer employment for faculty* — This means of assistance by industry to higher education was supported by all but one, who disqualified himself as not having enough background to justify an opinion. The fact that it "enables faculty members to keep in touch with current practices in the industrial world" was cited as a reason for favoring summer employment.

Two very interesting and opposite viewpoints were expressed concerning salary. One was concerned with the possibility that colleges and universities might use the fact of summer employment as an excuse to pay lower salaries. This I doubt. Another observed that summer remuneration should be greater than the prevailing faculty salary rate. In so doing he discounted the fear that if industry pays more, the faculty member might go to industry. He believed

(Continued on page 64)

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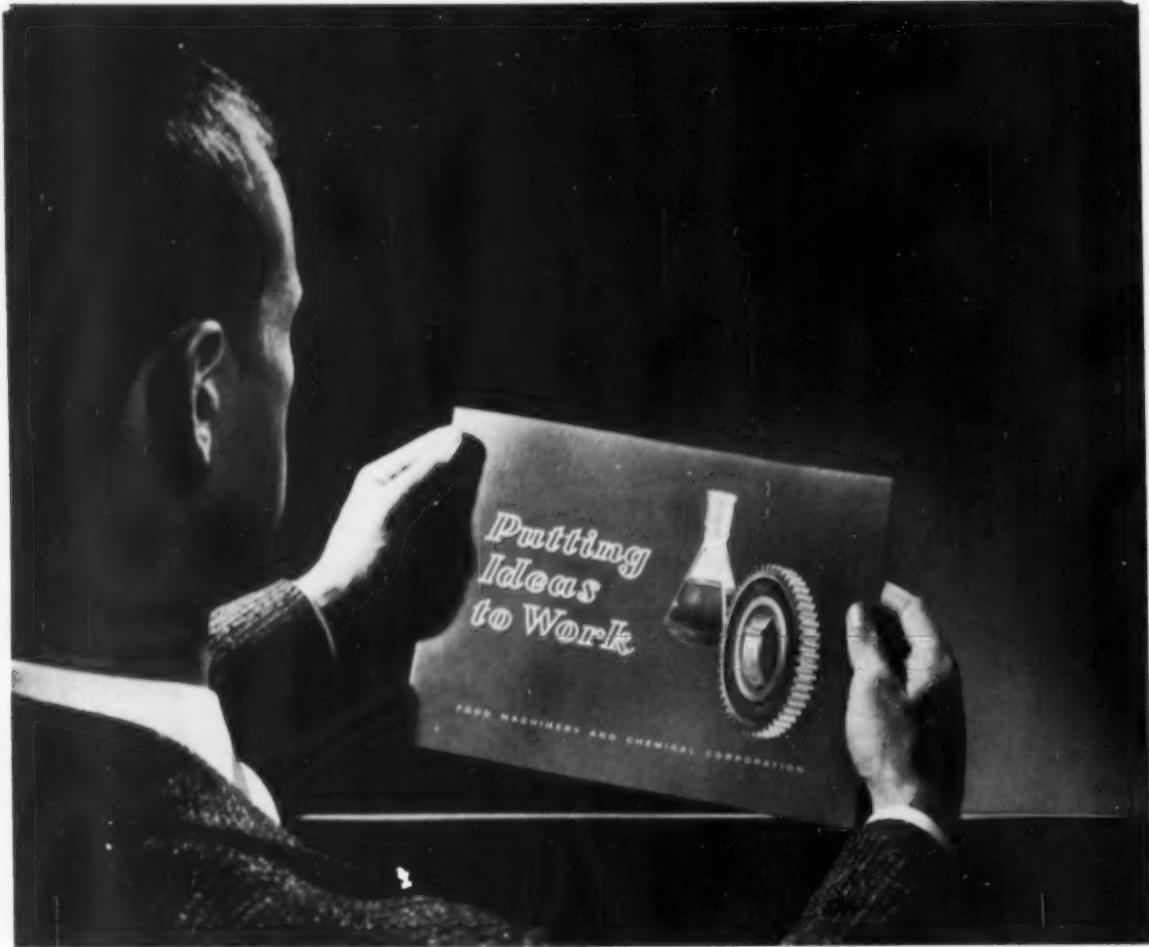
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I have just laid out on my desk a form from the Commonwealth of Massachusetts, Department of Education, saying that one of my former students has enrolled with the Teachers' Registration, and has referred to me as qualified to testify regarding his professional education and teaching experience. My information will be confidential, which is a good thing, because I have none. A prompt reply will be appreciated, which is too bad, because I shall tear up this form, and file the scraps in the wastebasket, with regret well mixed with annoyance and frustration.

This Massachusetts Department of Education form has twenty-five items in a "scale" on each of which they ask me to grade the candidate as E for excellent, G for good, F for fair, or P for poor. Appearance. Disposition. Voice. Poise. Dependability. Leadership—(they always get that in)—Provision for individual differences. Reaction to criticism. Physical health. Mental health, (he could be crazy by now, for all I know)—. Ability to use devices, —(what devices?) . Attitude toward officials, colleagues, parents, and pupils. Care of room and equipment. Participation in community life. Opportunity you have had to judge applicant.

The not-so-young man who used my name as a reference was graduated six or eight years ago from the college where I am, for better or for worse, an Associate Professor of English. He was a good undergraduate editor of our magazine, and we did a good job that year. Once, two or three years later, he dropped in at my house. We talked about our editing of the Tuftonian—I was the faculty editor. I have never seen him since, never heard from him, never heard of him from anyone else. I liked him then, and I'd like him now, if he dropped in again. But I certainly do not feel able, in-

formed, or willing to sign my name to a recommendation for him. I know nothing about him in his teaching experience these eight years. And I know nothing about the particularities the Department of Education is particular about. Joe—we'll say his name was Joe—should I give him E for excellent, or P for preposterous (you can look that one up, and find out how apt it is, in this case) or should I give him F for fair. No, I think not. Because he has been most unfair, to me and to himself.

Faculty members, and especially department chairmen (of which I am not one) have to write a great many letters of recommendation, fill out a great many forms, every year, all year long. Seniors hope to be admitted to law and medical schools. Brilliant and favorite and already successful students hope to go on to other graduate work or get jobs. Five and seven and ten years later, the same people are moving to a new and a better job, and they use our names as references. Voice. Poise. Physical health. Dependability. But the one query that makes it impossible is one that always turns up: How long and in what capacity have you known the applicant?

Joe was in my course in composition for one semester, five years ago. At that time he did superior work. In fact, I used to look forward to reading his papers, and to talking with him. I have never seen him since, nor have I heard from him. Period. He remembers that I liked him then, and that we used to talk a great deal. Probably no one else on the faculty knew him as well as I did. Therefore he has used my name as a reference to get this job. Period. New paragraph.

What Joe should have done, or anyone smart enough to know how important sources of recommendation are, would have been to keep in touch with me—that is to say, with any members of

Your request of

March 15th—

## WITH REGRET

*One who has suffered too long with incredible, unreasonable, and unending reference forms lets himself go—with good, if salty, advice for those who design them.*

By JOHN HOLMES

*Associate Professor of English  
Tufts College*

the faculty he might need later on, as reference. Sure, I liked him way back when, and he knew it. But since? I wouldn't take the risk myself that the prospective employer is about to take, because I don't know anything about him.

#### Cultivation Is Valuable

Joe, and this means Joan, too, should make it their business to cultivate members of the faculty who will be useful to them in later years. This cultivation is very pleasant when it can be spontaneous, informal, and mutually enjoyed, as sooften it is. It can also be done quite deliberately, with shrewd foresight, and that is all right, too, and respected and understood, though it is rather rare.

The Joes and the Joans don't look ahead far enough, and don't begin soon enough to look ahead (how many of us do look ahead, and lay plans for the far future?) to realize that they are going to need letters of reference from their college, not only in their senior year, but again and again in the following five or more years. Each person, as he begins his earliest professional life, should know that somewhere a dossier, a file, a folder of information and record, has begun to accumulate. To this folder he will have to return for help again and again. This record, for a college graduate, begins as soon as his first freshman grades reach the Registrar's office, and that part of it ends when he can ask for a photostatic copy of his four years' work. By that time, there will be more than his grades in French 3 and History 1, and Calculus, and what not. There will be some pink or blue or white sheets he has asked some of his professors to fill out for the Placement Office. There will be data from his aptitude and other tests. There will be probably some unofficial confidential letters about him.

But there will be the beginning of Joe's file.

This is no Gestapo file. This is its opposite, in fact, the fully informed, the more than parental, the careful and accurate and sympathetic sizing-up, from every evidence the college — and the professor who gets the Massachusetts Department of Education form-sheet dumped on his desk — has that Joe is any good at all, or some good, or very good. Joe should know early in his college career that someone loves him, even if we don't have time and opportunity to say so, and do anything about it. Joan should know it, too. There is in all this piling-up of information, and of record, and of testing, also a great deal of affection. Why not say so? I think the simple human attraction, something like love, or maybe really love, between teacher and student, is as important as a family relationship, and that it should be just that way.

#### Should Inform Professors

We want our children to succeed (now maybe I am getting maudlin) and we want to do anything we can do to help them on their way. The Joes and Joans are in something like a son and daughter relationship to the professor. They should realize that the professor they have adopted as a sort of father wants to be, and must be, kept in touch with their movements, condition of servitude, and state of mind. They should write to the professor at least as often as they write home, or at least as often as they think that college part of home would like to hear. Recently I received the very model of what this should be. A fellow who graduated more than two years ago, of whose stories in my writing courses I had had great hopes, told me about his marriage, his unwilling start at law school, and the job reluctantly taken after that. He

told me about his decision, encouraged by his wife, to drop it all for graduate school. He enclosed four stamped, addressed envelopes to the right Deans, with forms where necessary, and he provided a list of deadlines. Believe me, I have met those deadlines, and with a glad heart.

#### Personal Letters Are Best

There was a little trouble with some of the forms, though. Those that use phrases summing up desirable qualities are sadly likely to get those same phrases right back, because they're better than the professor can devise at the moment. Deans of Admissions have given them a lot of thought, naturally. The best are those that indicate the nature of the work the candidate would do if accepted, and warn the professor that merely enthusiastic but vague cheers are not enough. Best of all are those that do not try to warn, steer, or limit the professor at all, but will settle for a personal letter on department stationery.

The human relation the student should establish with his professor should carry forward humanly from the professor to the Dean of Admission, or employer. The only direction in which no form is provided for checking is the professor-to-student line of attachment. That, at least, is so obviously ridiculous that no one has ever thought to draw up such a form. All our assumptions there are based on a human relation, a human understanding, warm and admiring and hopeful. But between the employer or admissions officer and the professor it is all form, and the professor is asked to turn his care and affection into percentages and check marks. The student, too, seems struck dumb as he gazes up appealingly at his professor. In the first and the third links of the chain, let there be words, human words.



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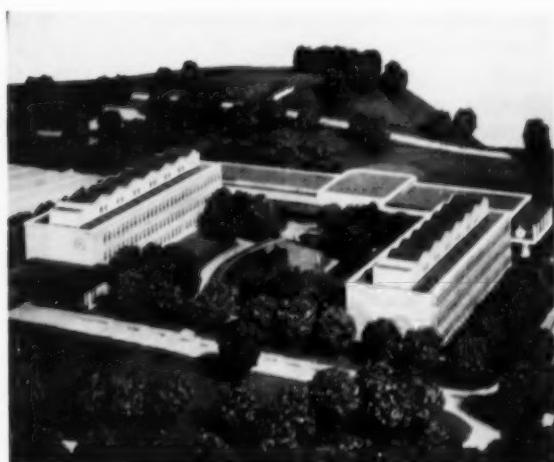
**Business Administration** (*Same as Sales and Technical Services*). Men interested in focusing their attention within the IBM organization as administrators and accountants have similar opportunities at our headquarters, in our many plants and in our 190 branch offices throughout the United States.

**General Information.** There is an air of excitement at IBM—for we are pioneering on the frontier of man's knowledge. Expansion potential has never been greater; our sales volume has doubled, on an average, every five years since 1930. The use of IBM electronic data processing machines is the foundation of research in all of man's activities today. New uses for our products are discovered constantly. New and exciting challenges continually confront us.

At IBM the employee advances entirely on merit. Financial rewards are excellent, and progress is under constant review. Our problem is not finding greater responsibility, but the man or woman to handle it.

IBM provides, at its own expense, a retirement plan, a group life insurance plan, a family hospital plan, and a major medical plan. In some areas, there are attractive IBM country clubs.

We know that many young men and women are interested in additional education. We believe there is no other organization in America that matches the opportunities and benefits which IBM offers for personal improvement and training in further education. Evidence of our interest in everyone working at IBM is our rate of turnover—less than one-sixth of the national average.



**Creative research** finds its greatest opportunities in IBM laboratories, where the finest equipment and facilities are available. These are IBM's newest laboratories at Poughkeepsie, N. Y.

#### **How Your Students—Men or Women— MAY APPLY . . .**

1. Brochures should be available in your office—and no doubt you know the date of our next series of interviews on your campus.
2. Or the student may call or visit the nearest IBM office.
3. Further information is available by addressing:  
Mr. R. W. Habner, Director of Recruitment  
Dept. 9503  
International Business Machines Corp.  
500 Madison Avenue, New York 22, N. Y.



**INTERNATIONAL  
BUSINESS MACHINES  
CORPORATION**

**DATA PROCESSING  
MILITARY PRODUCTS  
TIME EQUIPMENT  
ELECTRIC TYPEWRITERS**

*One of a series of advertisements appearing in selected college newspapers*



## Don't interrupt, please...

it'll cost an insurance company \$1000 a minute

The insurance loss adjuster is watching this scene intently. If there's a coaxial breakdown in transmitting it, the picture fades out. So does the audience, and the advertiser's stake in sales. The loss potential is so great that it might be insured for \$60,000 an hour.

"Business Interruption," as it is called, is only one of the many kinds of loss that keep life busy—and interesting—for men in insurance. The North America Companies write policies and bonds covering every hazard you can think of. They throw a wall of protection around American business—and its homes, hospitals, schools, churches. The protection includes coverage for fire, burglary, auto liability, court judgments, ocean cargo risks and other hazards.

For young men who want to be "in every business," insurance is the business to be in. At North America, the country's oldest and strongest stock fire and marine insurance company, there's opportunity in the careers that "make insurance work." Men can be trained for a non-selling job as field representative, underwriter, claims and loss adjuster, staff service man. If you haven't seen it, send for our booklet, "Your Future with the North America Companies"—write H. Paul Abbott, 1600 Arch Street, Philadelphia 1, Pa.

### NORTH AMERICA COMPANIES



Insurance Company of North America  
Indemnity Insurance Company of North America  
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Protect what you have ©

Philadelphia

By C. E. WORK

Associate Professor of Mechanics  
Rensselaer Polytechnic Institute

# Industry's Stake in Our Professors

*To an ever-increasing extent, business and industry are finding that the faculty member can contribute notably to summer programs and that improved public relations is an important by-product for the firm.*

THE college professor is more than a teacher. His role is not limited to his formal assignments behind the academic steam table serving mashed mechanics or stewed servomechanisms to students filling their trays in the educational cafeteria. The professor helps plan the menu, prepare and season the dish he serves, and usually has the opportunity to help the student find where to go with his transcript once it is laden with savory delicacies of his choice.

Those in placement and recruiting positions are vitally concerned with the menu, that all the vitamins are included, but they have a more immediate concern that once the tray is full, the graduate takes it to the right place.

Perhaps it is unwise to stretch the analogy to ridiculous lengths attempting to include ideas it cannot properly express. It has already reminded us, however, that the professor serving in a scientific and technical school is unquestionably shackled with a

multiple role which is intimately related to the world of technology outside the school where each crop of graduates finds its place. In order to prepare the student for his place in the world of technology and to help him find that place the professor must, himself, keep in touch with that world to which the graduate is to go. We shall refer here to the consumer of the student product of our schools as industry.

The professor is able to maintain some measure of contact with industry through the technical societies and certain other means, but his understanding of industry cannot be either broad or deep if his information and experience with industry do not extend beyond the second-hand or hear-say basis. Efforts of alert leaders in industry to provide opportunities for professors to obtain first-hand experience in industry and for free exchange of ideas continue to show progress. The avenues along which these efforts are directed are numerous.

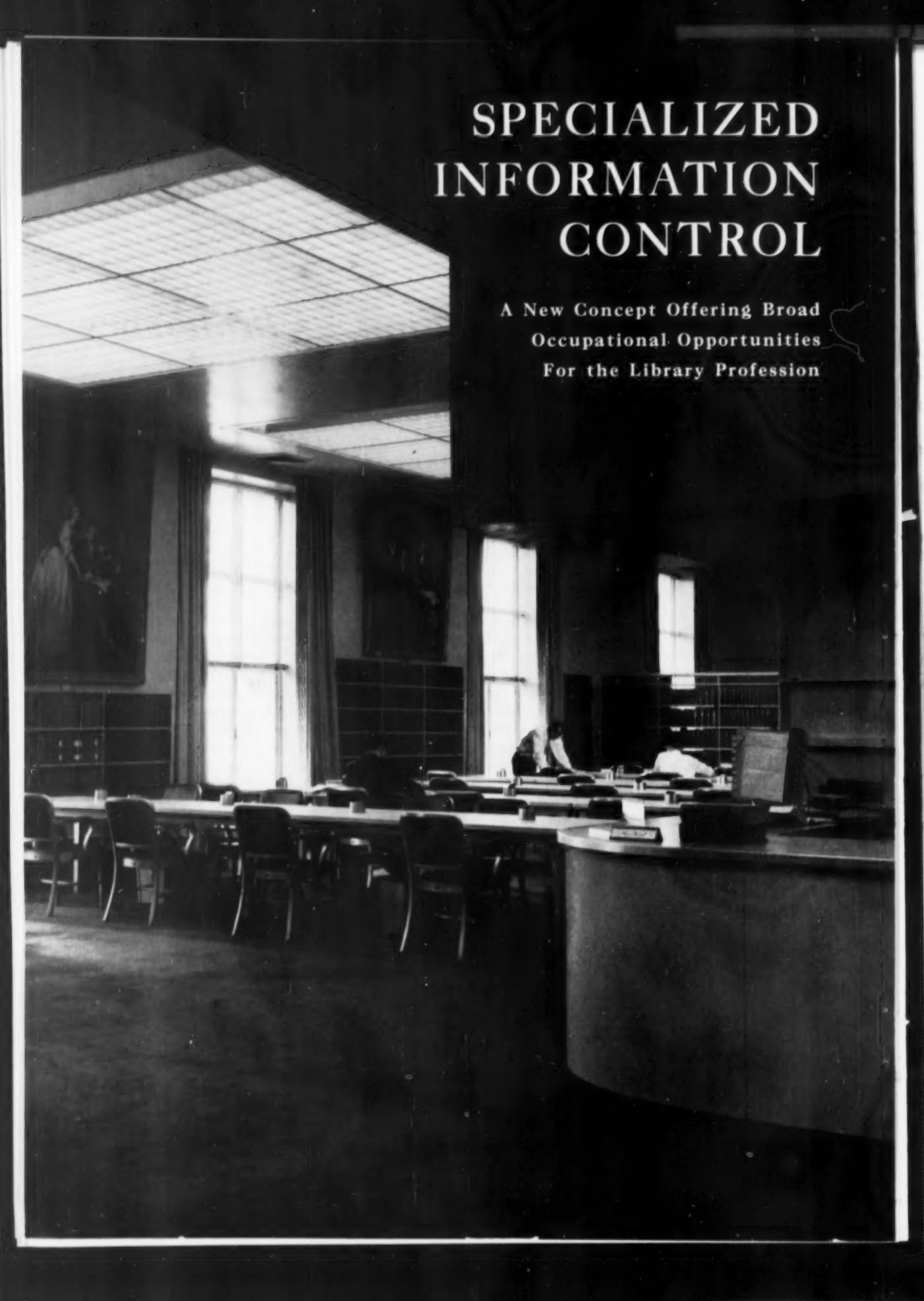
Some of those avenues have been discussed in previous articles.\* These two references outlined the benefits to the teaching of science and engineering to be realized as a result of experience gained by the teacher through extended periods of regular employment in industry and also the benefits from experience gained in consulting work. They also pointed out that there exist convincing practical reasons why planned periods of contact of short duration, i. e. during the summer months, offer perhaps the most promising avenue through which experience in industry can contribute to improved teaching and to proper placement of the graduates.

Summer employment experience gives the professor an occasional shot in the arm to keep him alive, up-to-date, and inspir-

(Continued on page 70)

\*H. P. Skamser and C. E. Work, "Summer Employment—Boeing Style," *Journal of Engineering Education*, Vol. 44, No. 9, May 1954, pp 514-518

C. E. Work and H. P. Skamser, "Industrial Summer Opportunities," *Journal of Engineering Education*, Vol. 44, No. 10, June 1954, pp 581-583



# SPECIALIZED INFORMATION CONTROL

A New Concept Offering Broad  
Occupational Opportunities  
For the Library Profession

**T**O DAY vast sums are being spent on research and the application of scientific discovery to human needs is accelerated. As a result, the demand for exact information in a variety of fields has opened up wide areas of specialized employment. The impact of the demand of our increasingly technical civilization pervades every scientific and engineering discipline. It even pervades the hallowed tradition of librarianship. The situation is so fluid that it is difficult to apply definitions to these specializations. One thing is sure: The general field of librarian and information specialist is just beginning to grow. The demand for imagination and ability is at a premium.

There are two basic problems of the general field. The first obstacle is the general and popular caricature of the library profession as a sort of genteel and effete occupation. The second problem is that most educated persons, whether in industry, politics, research, commerce or government, have but a hazy idea of the role of recorded information in their daily lives.

The field can generally be divided into three groups with a considerable amount of overlapping. Precise job descriptions do not exist for the over-all occupation, but only when the job is defined within the framework of a particular organiza-

*If ever graduates have shied away from librarianship as a genteel and effete profession, they will discover in developments of the past 15 years an eye-opener.*

*The author finds today's demands for the handling of recorded information an exciting challenge.*

By ROBERT S. TAYLOR

Assistant Librarian, Lehigh University

tion. The three are: the traditional field of special librarianship, the information specialist or documentalist, and the many peripheral professions which are necessary in the information process.

Special libraries are a twentieth century phenomenon and the last fifteen years have witnessed a four-fold growth in this type of service. In 1941 there were 765 special libraries in the country; 1,600 in 1947; and more than 3,000 in 1955. The special library has developed primarily as business and industry found that their information needs could not be delegated to a secretary, however competent, but required persons trained in the organizational techniques of recorded information.

The tremendous increase in new technical information—ten times more scientific information was produced in 1954 than in 1940—and the variety of storage forms from printed page to punched card demanded a sophisticated but practical approach to organization. Special librarians in part fulfill this need.

Special libraries are not however limited to business and industry. There are music libraries, libraries attached to scientific research organizations, and the special libraries of large university systems and large public libraries. All require two things: a subject knowledge set in a broad background of general education, and one year of professional graduate study at an accredited library school. For scientific and technical libraries, an undergraduate major in physics, chemistry, biology, or one

of the engineering curricula is almost mandatory. This is particularly true of such fields as aeronautical, chemical, or electrical engineering. The subject specialization is most important. Chemical companies, for instance are never willing to accept a person with library experience and no chemistry, but they will employ chemists with no library experience. However, individual mobility within the profession is aided by library training. In addition to these aspects, the special librarian should be able to analyze and summarize succinctly large quantities of data, and should be familiar with at least one foreign language—German, French, and Russian being the most important.

The following figures show the subject breakdown of membership in the Special Libraries Association, which has over five thousand members.

Advertising	282
Biological Sciences	407
Business	337
Financial	263
Geography & Map	177
Hospital	208
Insurance	120
Metals	217
Military Librarians	185
Museum	187
Newspaper	136
Picture	146
Publishing	181
Science—Technology	1939
Social Science	729
Transportation	66

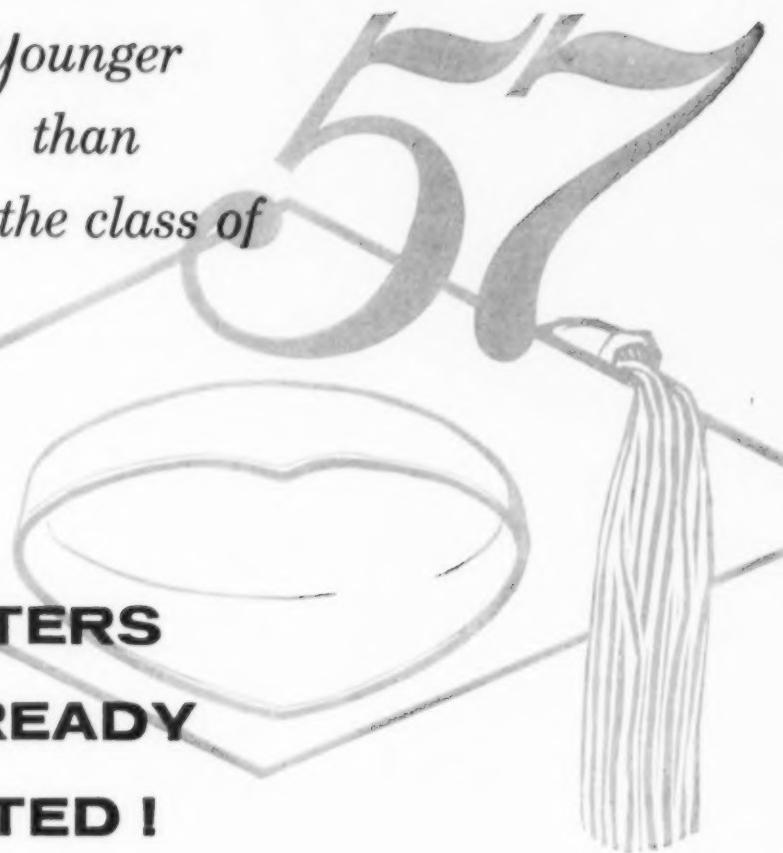
Total Membership 5582

Other types of special libraries might employ personnel with a background in economics, busi-

(Continued on page 76)

Firms recognizing the value of information control have spared no expense in providing facilities. DuPont's new Lavoisier Library, whose main reading room is shown on opposite page, is a part of the \$30,000,000 expansion program of its Experiment Station. The Library contains 25,000 volumes and is staffed and equipped to render research men a great variety of services in the field of scientific literature.

*Younger  
than  
the class of*



## **HELICOPTERS HAVE ALREADY GRADUATED !**

But as it will be for seniors in June, the "graduation" of helicopters was only a beginning, literally a *commencement*.

But the rotary-winged craft *and* the college student of today face a future that is at once challenging and promising.

To the young, technically trained people now at Sikorsky Aircraft and to those who will *join* the Sikorsky team in the near future . . . belongs the thrill of developing a product of their generation.

That product already carries the mantle of the world's most versatile aircraft.

*In order to maintain its leadership in the fast-growing helicopter field, Sikorsky Aircraft gives the young engineer every opportunity to make his a life full of professional satisfaction. In line with this policy the company provides graduate study fellowships for those who wish to progress and further their engineering education.*



### **SIKORSKY AIRCRAFT**

BRIDGEPORT 1, CONNECTICUT

ONE OF THE  
DIVISIONS OF  
UNITED AIRCRAFT  
CORPORATION



## Iowa State calls them: Vocational Chairmen

*Faced with the old problem of exciting vocational interest prior to the senior year, the author turned the problem over to the students—with rewarding results.*

By HELEN M. BARNES, Director of Placement,  
State University of Iowa

### ■ The time: Spring of any year.

The Scene: A college senior hesitantly draws up a chair next to the placement director's desk, rubs his chin thoughtfully for a second, and says, "I'll be graduating in a few months, and I really have no idea just what opportunities are open to me with my background and interests. I'm a sociology major. What job can I get?"

How many times and on how many campuses does the per-

plexed senior, with no concept of job opportunities or requirements, rush into the placement office for last minute advice or vocational guidance? All too often.

A never-ending and often frustrating task of the placement director is to instill in students the need to become career conscious early in their undergraduate years. Again and again we implore the underclassmen to investigate literature of various industries to find out what they

Beta Theta Pi Fraternity members at the State University of Iowa browse through vocational books and industrial brochures in the "career corner" of their fraternity library—a feature of the vocational chairman program at 19 houses.

offer and what they desire in job applicants. Again and again we beg the student to do this investigating when he is a freshman, sophomore or junior—not to put everything off until the last six months of his senior year when it is too late to alter a course or to add an elective here or there in order to become a more desirable candidate for the occupation of his choice.

To attract student attendance at career conferences, college placement directors frantically tack posters on bulletin boards, place announcements in student newspapers, broadcast notices over the student radio, and ask faculty members to alert students to these conferences. But despite using everything but smoke signals there are still

those students "who just never did hear about those career conferences" or never realized that they are welcome to visit the placement office for advice about job opportunities until it is too late.

To develop "career consciousness" among our underclassmen early in their college life is a major aim of the State University of Iowa placement service. We overlook no idea or plan which may increase this "career consciousness." Based upon this philosophy of stressing career consciousness early in academic life, we hit upon the plan to make use of the cohesiveness and spirit of cooperation within our fraternities. Thus was born our fraternity vocational chairman program.

#### Vocational Chairman Defined

What is the fraternity vocational chairman program and how does it work? Our thesis in undertaking such a plan was that if each of our 19 fraternities had a single member who would actively promote career planning and distribute vocational literature in cooperation with the placement service, he could stimulate more reaction among his fellow fraternity members than any other type of communication we might attempt.

During the 1955 fall meeting of the University's Inter-Fraternity council, our placement office proposed the idea of stimulating career consciousness through the cooperation of fraternities. Out of several such discussions a vocational chairman program evolved. The placement service made a mimeographed sheet outlining the plan. It contained five major suggestions:

#### I. DEVELOP A GOOD PLACEMENT LIBRARY.

A. Start with the purchase of as many of the following books as possible in the order given:

"Six ways to Get a Job," by Paul Boynton

"Selecting the New Employee," by Paul W. Boynton

"Employment Service Handbook for 1954"

"Journal of College Placement"

B. Keep career books from year to year.

C. The placement service office will write to approximately 20 companies representing various areas of employment whose brochures do a good job of indicating employment opportunities. A list of the companies can be furnished to vocational chairmen who are interested. These brochures should be kept in a well-organized fashion in the library.

#### II. CAREER CONFERENCE—

Vocational chairmen should urge all members to attend as much of the Collegiate Chamber of Commerce Career Conference as possible.

#### III. SUMMER EMPLOYMENT—

Among the companies coming to campus this spring there will be some interested in seeing students on the sophomore and junior level to fill positions. As a means of exploring future job interests, individuals interested in these types of employment should file an application in the Office of Student Affairs at once.

#### IV. MILITARY SERVICE—

Vocational chairmen should encourage all of their members who intend to go into military service following graduation to take advantage of interviews.

#### V. FUTURE PLANS OF VOCATIONAL CHAIRMAN PROGRAM—

Vocational chairmen should survey their groups for any ideas that the vocational chairman organization may want to undertake for next year's project.

Beside presenting a mimeographed copy of the above plan to each of the 19 fraternity vocational chairmen, the placement office urged that each fraternity set aside a small section of its library as a "career corner" where literature and a bulletin board might be placed. At regular intervals the placement office sends pertinent information to the vocational chairmen to place on the bulletin board. For example, we recently sent a "preliminary interview scoring page" which interviewers often use in evaluating prospective employees. In this way students have an opportunity to study the traits which an interviewer seeks while conferring with prospective candidates.

#### Program Is Outlined

In brief, this is how our fraternity vocational chairman program works:

1. Each of the 19 fraternities appoints its own vocational chairman.

2. A small section of the fraternity library is devoted to vocational and career books, a display rack of industrial brochures, and a bulletin board containing the latest pertinent career and vocational news.

3. The vocational chairman of each fraternity is encouraged to stop in at the placement office with any common questions or problems he has pooled from members of his fraternity.

4. Vocational chairmen are encouraged to arrange group meetings of their fellow fraternity members at which time a representative of the placement office discusses employment trends and answers any questions which might come up among the fraternity members.

Has our experiment with the fraternity vocational chairman program been successful? The answer is a definite "Yes." Although this program has been

(Continued on page 96)



## *What would happen, if...?*

Discovery begins with curiosity. And the scientist's question, "What would happen, if . . . ?" is the prelude to progress. But successful scientific inquiry needs the all-important combination of capable tools and encouraging environment.

This promising combination exists at Owens-Illinois, not only for engineers and scientists, but for career men in all phases of the Company's operations. And, Owens-Illinois offers the wide choice of careers in sales, production, accounting, administration,



### *What would happen if . . . made your career at Owens-Illinois?*

within, a long-established policy at Owens-Illinois, adds real future for those men who can grow.

your Military status, Owens-Illinois will give full consideration to immediate employment.

training programs, under qualified and carefully planned supervision, developed to develop the skills of young men building their careers with us.

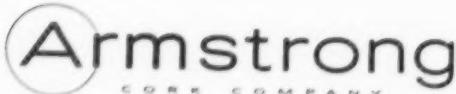
The more than 34,000 people at Owens-Illinois help make and sell these products:

Duraglass Bottles and Jars • Metal and Plastic Closures • Kimble Laboratory Glassware  
Libbey Safedge Glassware • Plastic Containers and Fitments • Television Bulbs  
Glass Block • Kaylo Insulation • Kimble and Hemingray Insulators

We invite you to write to: } E. H. Marks, Director, Selection of Specialized Personnel

MAKERS OF  PRODUCTS

OWENS-ILLINOIS  
GENERAL OFFICES • TOLEDO 1, OHIO



## SHOWS THE WAY TO YOUNG SCIENTISTS

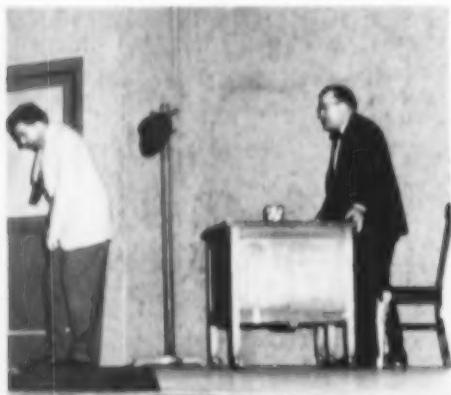
*Many a recruiter has pointed out to young people the advantages of science and engineering as a career but the Personnel Department of Armstrong spearheaded a program that did it the hard (but effective) way—800 at a time. More important, it's a format that can be reproduced in any plant community. They hope you will.*



J. E. Smith is the center of a panel which provided off-stage questions and answers bearing upon the career information in the program.



A skit illustrated what selling is not. Here the over-aggressive salesman is overwhelmed with his own humor as the customer becomes irked.



■ A program that can be adapted to any community where one or more manufacturing firms have a diversity of employment opportunities was used last month to show 800 students of Lancaster, Pa., what science and engineering offer as a career.

Cooperating with the Lancaster city and county schools and the Manufacturers' Association of Lancaster County, the Armstrong Cork Company presented an hour and a half pro-

At conclusion of program, students were presented with take-home literature concerning the opportunities for engineers and scientists.



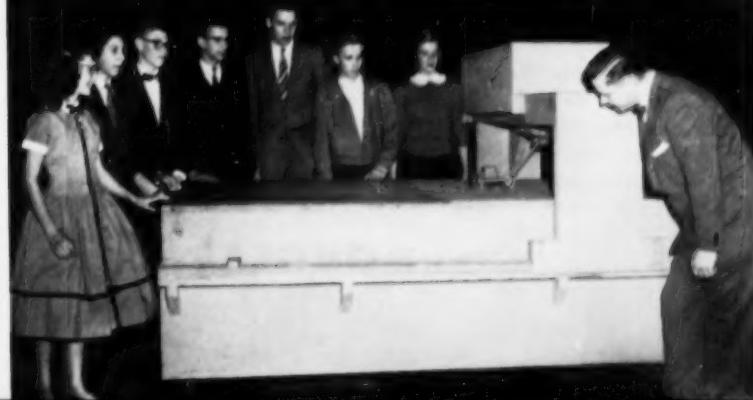
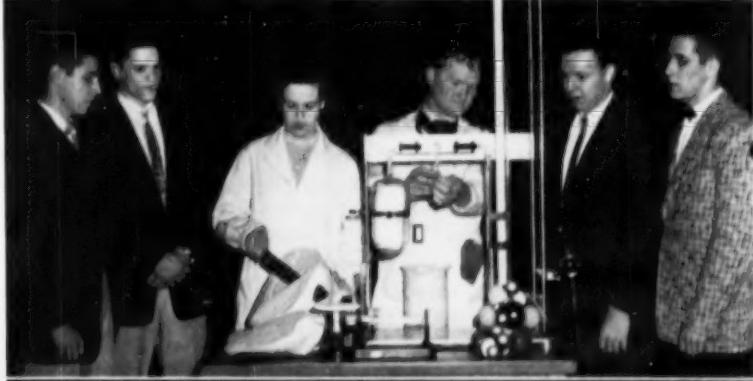


(Above) Top Armstrong executives with Dean Frank Myers of Lehigh University's Graduate School (third from left) acted their own roles in counseling audience. The development of a product (below) was illustrated as research scientists produced foam rubber, subjected it to tests, and illustrated its sound reducing properties by amplifying the noise transmitted by treated and untreated samples.

duction that held the attention of the teen-agers with fast-moving changes of pace. The center of attention moved rapidly from panel discussions to brief addresses, slide-films, and skits.

Most important, the students learned from top Armstrong executives who acted out their own roles just what part each played in the development of a consumer product from its conception to customer use. Only once in the entire script was the word "Armstrong" used.

Key figure in the planning as well as the acting itself was J. E. Smith, Assistant General Manager of the Personnel Administration Department, whose staff coordinated efforts with other departments to make the production possible.



# ENGINEERS... LOOK TEN YEARS AHEAD!



A Douglas engineer lives here

Will your income and location  
allow you to live in a home  
like this...spend your  
leisure time like this?



They can...if you start your  
career now at Douglas!

Take that ten year ahead look. There's a fine career opportunity in the engineering field you like best waiting for you at Douglas.

And what about the Douglas Aircraft Company? It's the biggest, most successful, most stable unit in one of the fastest growing industries in the world. It has giant military contracts involving some of the most exciting projects ever conceived...yet its commercial business is greater than that of any other aviation company.

The Douglas Company's size and variety mean that you'll be in the work you like best—side by side with

the men who have engineered the finest aircraft and missiles on the American scene today. And you'll have every prospect that ten years from now you'll be where you want to be career-wise, money-wise and location-wise.

Brochures and employment applications are available at your college placement office.

For further information about opportunities with Douglas at Santa Monica, El Segundo and Long Beach, California and Tulsa, Oklahoma, write today to:

DOUGLAS AIRCRAFT COMPANY, INC.

C. C. LaVene, 3000 Ocean Park Blvd.  
Santa Monica, California  
Box 620 CC

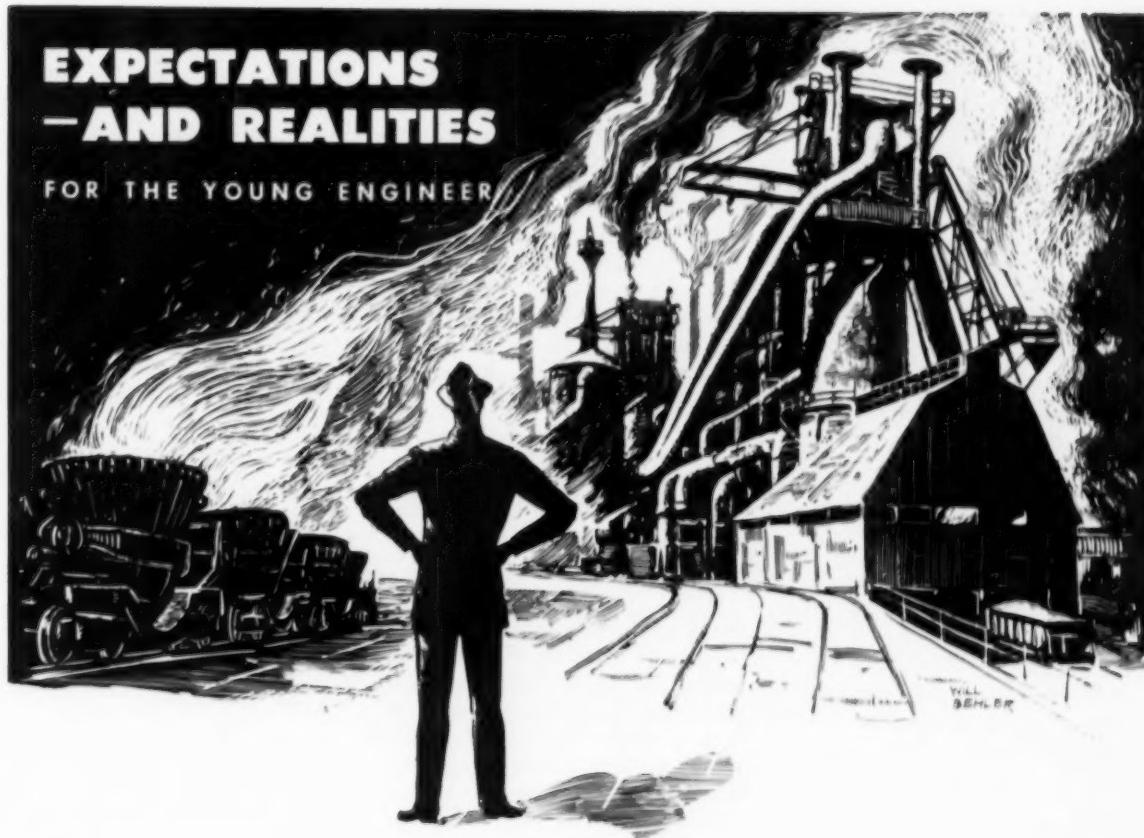
**DOUGLAS**



**First in Aviation**

# EXPECTATIONS —AND REALITIES

FOR THE YOUNG ENGINEER



**R**ELIABLE data reveal that American industry is creating annually 30,000 new jobs requiring engineering graduates. Since industrial concerns are the largest user of engineering talent, it is only logical for the young engineering graduate embarking upon a professional career to ask: "What Does Industry Expect of Me? What personal characteristics must I possess in order to become a successful engineer?

I have completed the required professional training and am ready to fill a position in an industrial organization which seems to be the best choice among many job possibilities. Now what will be expected of me in attitudes, thinking, and personal habits to most readily become a working asset to my organization?" The purpose of this paper is to attempt a brief answer to these questions, not from the technological aspects, but as an expression of what an engin-

**By L. R. NUSS**  
*Technical Recruiting  
Representative*  
*The Collins Radio Company*

eering recruiter considers to be purely personal considerations for a young engineer entering his chosen field.

The best approach to a proper outlook for the young engineer may be a consideration of the negative — what industry does *not* expect. Consequently, it is generally recognized that the first year or two after graduation are very critical years. The new engineer in many cases has been led to believe that he will immediately assume considerable professional stature as a member of a recognized learned profession. He feels that from the start he will be expected to make a major contribution to his company's activities.

W. L. Webb of Bendix Radio puts it this way: "He is full of

boundless enthusiasm and ideals, and thinks of the firm that he has selected as a great giant of efficiency and marvelous undertakings. Everything is done perfectly, everyone understands him, untold facilities, instruments, and people are at his command."\*

It is only logical for the young engineer under these conditions to enter his first job after graduation with the feeling that his company expects *perfection*. We would like to remind all young engineers of the recent recruiting advertisement by Minnesota Mining and Manufacturing Co., which appeared in the JOURNAL OF COLLEGE PLACEMENT. It reads: "Wanted: Creative Mistakes! Why should any company in its right mind be willing to buy mistakes? The answer is simple: You have to be in motion before you can stumble. And

\*Webb, W. L., "The Engineer and Industry," *Proceedings of the I.R.E.*, December, 1949, Page 1457.

if creative people are in motion — if they're free to use science and ingenuity in pushing toward new products — they're bound to succeed some of the time."\*

That is the philosophy we would like to express in our first observation — *industry does not expect perfection or genius of the young engineer*. All progressive companies know that good employees learn by trial and error, and expect new engineers to make many creative mistakes in their first years of employment. The true test of worth is the lesson learned — the profit realized — from those creative mistakes. This leads us to our first consideration of the affirmative — *What does industry expect of the young engineer?*

#### **Curiosity Will Develop**

One of the most valuable attributes of the true engineer is an inquisitive mind. Many educators will claim, on the basis of aptitude tests administered in high schools and colleges, that this is an innate quality with which one is either born, or just doesn't have and can never acquire. However, experience has proved that the tendency to become curious — to dig below the surface — to get at the bottom of a problem or situation — will grow and develop throughout an engineer's professional career.

Although no firm will expect a young engineer to be a Steinmetz or a Thomas Edison at the start, he will be a much more valuable employee if he recognizes the need for inquisitive search into the "why" of things, and avoids accepting surface values. One does not need to look far to find examples of engineering success which are mainly attributable to the individual's possession of a curious and inquisitive mind.

We would like to warn young engineers that after the first stage of post-graduation idealism

has worn off, there is bound to be a period of disillusionment in everyone's professional history. As Mr. Webb says, in tracing the four stages of an engineering career: "The engineer is now beginning to see the imperfections and gross inefficiencies in his firm. It is beyond his powers of comprehension how management can be so inefficient, shortsighted, heartless, 'plain dumb', and still exist. He sees errors in judgment, wastefulness, unfairness, and lack of competence on the part of his associates, supervisor, and management, including all other departments. Everything is done wrong, no one will allow him to make it operate properly or listen to his ideas."\*

It is during this stage that the young engineer wonders whether or not he is in the right profession, or in the right *phase* of the profession. This stage is without doubt the most critical period of an engineer's career. He either reaches the next stage soon, or gives up and tries another job. Enlightened management will recognize the need for encouragement, guidance, and orientation at this particular time. But it is necessary for the engineer on his part to maintain a boundless reserve of *enthusiasm* — in his choice of profession — of company — and in the work he is doing — in order to grow and mature in the field.

It is interesting to note that many industrial firms hiring engineers currently expect an annual turnover of at least 25 per cent on their technical staff. A considerable portion of this turnover could be avoided by carrying the abundant enthusiasm which characterizes the fledgling engineer, over into the second stage, where disillusionment too often prevails.

Today, most progressive firms recognize the need for some orientation of new employees, the extent to which this is carried out being dependent upon the size and complexity

of the organization. The diligent junior engineer who wishes to advance rapidly will not depend solely upon his company's orientation program for complete knowledge of line organization or departmental functions. By this we do not mean establishing a work pattern and personal training program which will conflict with daily assignments, and absent the engineer from appointed projects in order to become familiar with other divisions and departments of his company. But keen observation and the stimulation of curiosity beyond his own job into environmental surroundings will enable a young engineer to acquire the proper knowledge of his true place in the organization. Industry expects this of all valuable employees.

#### **Few Are Conscientious**

To cite an example, a three-day orientation course for new engineers was established at the Collins Radio Co. in 1953. Approximately 250 new employees have taken this course to date, which involves a brief survey of 7 operating divisions, 35 major departments, and meeting approximately 50 division or departmental supervisors. Of the personnel who have been given the course so far, only a few individuals were observed taking written notes during the three day course. Although note-taking was not required, these men obviously displayed keener interest with greater potential success in the organization through the simple expedient of writing down their observations. There is no doubt but what they have gained a broader knowledge of the company, and of their place within the organization, than any of the other 250 new employees.

We have stated previously that creative mistakes are expected of a young engineer in order to learn. In the process

\* Minnesota Mining and Manufacturing Company  
*Journal of College Placement*, December, 1952.  
Page 75.

(Continued on page 84)

# AIR CONDITIONING:

## *A Career for Engineers with Management Potential*

- THE FIELD IS ALREADY BIG, GROWING FAST . . .
- YORK IS A LEADER IN THE FIELDS OF AIR CONDITIONING AND REFRIGERATION . . .
- EVERY YORK INSTALLATION IS ENGINEERED . . .
- THAT'S WHY YORK LOOKS FOR ENGINEERS WITH MANAGEMENT POTENTIAL,  
TRAIN THEM WELL FOR RESPONSIBLE POSITIONS.

**Air Conditioning today is more than accepted; it's expected** and such burgeoning industries as frozen foods are making heavy demands for refrigeration. York clients include banks, hotels, huge office buildings, industrial plants, food processors, and government installations.

**York systems are engineered to fit the particular requirements of each customer.** This is important to York, because it is one of the factors contributing to York's reputation as a producer of quality air conditioning and refrigeration. It is important to the graduate engineer, because it indicates York's dependence upon the engineer. York's industrial systems are sold by engineers who contribute their skills to the specification and installation of the system, each step of the way.

York's smaller packaged systems

for stores, residences and individual rooms are factory engineered to fit the ever increasing variety of commercial applications. And York offers its engineer greater flexibility in his system designs through more types of air conditioning or refrigeration equipment than any other manufacturer.

For the York engineer, the jobs vary: today's might be a large office building; tomorrow's a bank, a store, a huge factory, or even an environmental test hangar for the Air Force.

**York management is largely drawn from its engineering staff.** Today, of the 25 top engineering executives at York, 19 came up through the YORK College Graduate Training Program. Being engineers, they know the problems and aspirations of young engineers . . . and they

know how to help them get ahead.

The **YORK College Graduate Training Program, alone in the industry** provides a personalized and tailored training content beamed to the specific placement chosen by the Engineering graduate. It is comprised of integrated classroom and on-the-job training assignments under both the Graduate Engineering Training Program and the Graduate Business Training Program to assure fullest personal development.

To learn more about the Air Conditioning and Refrigeration industry, York Corporation, and its highly effective College Graduate Training Program for your graduating engineers, write: Training and Education Department, York Corporation, a Subsidiary of Borg-Warner Corporation, York, Pennsylvania.



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MECHANICAL COOLING SINCE 1885

**YORK**  
CORPORATION

# Why you should look into an



Don Thompson (right) picks up information on oil shipping practices. He's shown aboard tanker  
ESSO BANGOR with Captain L. J. Hasse of Esso Shipping Company.

# ADVERTISING CAREER with a McGraw-Hill Magazine

***Don Thompson, U. of Va. '47, Tells About the Challenge  
of Advertising and Its Many Opportunities***

Listen to Don Thompson, District Advertising Sales Manager for McGraw-Hill's *Petroleum Week*:

"What do I like about my job? It's primarily the fact that it's always interesting, always challenging. It's the chance to meet and work with people, including the men at the top of the advertising business, both with manufacturers and with their advertising agency executives.

"In my job, I get around, too. I not only call on major oil companies in New York, for example, where many have headquarters offices, but visit many of their other facilities, as well. I've been in the oil fields, at refineries, at loading docks—nearly everywhere you can go to see one phase or another of the petroleum business!

"Another thing about my job—I meet advertising problems, marketing problems, sales strategy at the 'ground floor'. There's a wonderful sense of satisfaction in being part of important decisions when they are made. The challenge of the new—either with the magazine or in our customers' products—is always there to keep the job interesting, too."

## ***YOU—and McGraw-Hill***

An advertising sales career with McGraw-Hill—world's largest publisher of business and technical magazines—makes you an important part of the business world. You are in close association with the men who direct the advertising and sales programs of industry. Above all, you can be certain of substantial rewards, both financially and in terms of a sense of personal accomplishment like Don mentions.

*What background should you have?* We're looking for college graduates—an engineering degree is NOT

essential but could be an asset. If you have an alert, imaginative mind plus strong drive and energy, you already meet our primary requirements. In a business like ours dealing with words, a vocabulary sufficient for you to express yourself well orally and in writing is essential.

*How about advancement?* You will be given complete basic training within the McGraw-Hill organization, then given actual on-the-job experience. After this training—usually within 18 months—you will be assigned to a producing sales territory, and to one of the 33 magazines we publish. During your training you will be paid straight salary; when assigned to a magazine, you receive salary plus commission on the volume of advertising you sell. 96% of McGraw-Hill management has come up "through the ranks."

## ***Are YOU the Specific Man We're Looking For?***

Beyond these basic requirements, you should have tact, diplomacy and a liking for meeting and working with people of all ages and levels.

Send today for your copy of "Successful Careers in Publishing with McGraw-Hill"—a detailed description of the many career opportunities with McGraw-Hill Publishing Company. It tells you who and what we are—history, future, organization, products and facilities, personnel policies and philosophy. And it gives you detailed information about the qualifications we are looking for and about the company training program.

People are the mainstay of our business. We're looking for new talents, new ideas. We want people who will grow with us. See from this booklet if we're looking for YOU.

For your copy of "Successful Careers," write:  
*George Pomeroy, Director of Sales Training*

***Editorial Opportunities, Too!***  
McGraw-Hill publishes 33 business and technical magazines, both domestic and international. Excellent opportunities exist here for men with editorial ambitions and abilities.

# McGraw-Hill Magazines

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330 West 42nd Street, New York 36, N. Y.*

# METALLURGY PHYSICS MATHEMATICS

Du Pont wants graduates in these fields, too!

The continuing growth of Du Pont is creating openings in many new fields.

For example, 1957 requirements include:

**METALLURGISTS**—for such work as basic research on the physics of metals, for analysis of construction materials and study of corrosion.

**PHYSICISTS**—of many kinds, including specialists in solid state, molecular structure, applied electronics; nuclear and optical physics.

**MATHEMATICIANS**—for work in many fields such as programming, digital and analog computer work, operations research and statistical analysis.

Although there is a continuing demand at Du Pont for large numbers of chemists, chemical, mechanical and electrical engineers, there is increasing opportunity in the more specialized fields like those listed above. This may be news to your graduates in metallurgy, physics, mathematics and specialized sciences. If so, we invite their inquiry. (Personnel Division, Du Pont Company, Wilmington, Delaware.)



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Watch "Du Pont Theater" on Television

■ Banks all over the country, both big and small, are looking for qualified college people of both sexes who may be interested in entering the banking profession.

Some idea of the opportunities open to them may be gleaned from the following statistical item: About 1,000 bank presidencies, along with 4,000 other officer positions, must be filled every year in the nation's 15,000 banks.

The main reason banks need more executives and other personnel is of course that they have been growing so fast.

Since 1940 the number of commercial bank accounts has doubled while the size of bank loans and investments has tripled. At the same time the banks have also greatly expanded their services.

All this has brought more than 250,000 new people into banking during this period, with a consequent need for more men and women to assume managerial or supervisory responsibilities. And since the banks are continuing to grow as the nation's economy expands, the demand for new officers and other personnel will continue with the coming years.

What assurance is there that an ambitious and able young man or woman will really move up the ladder in the banking profession? For one thing, the banks are pretty generally committed to the policy of promotion within the ranks. For another, the industry offers a unique educational program designed

to qualify its people for better jobs.

In line with their promotion policies, banks spend a good deal of time and money in keeping tabs on promising employees. In the smaller banks, management has more direct contact with employees and so gets first-hand information on individual skills, abilities, and personality characteristics. In the larger banks, management provides elaborate facilities for the

## A Banking CAREER OFFERS INCENTIVES

appraisal of its personnel. So when executive jobs open up, management generally knows just which of its people are equipped to handle them.

To qualify for promotion, bank employees can—and do—avail themselves of an outstanding two-fold educational program sponsored by the American Bankers Association.

One phase of the program is offered through the American Institute of Banking—the world's largest adult educational organization affiliated with a single industry. Open to all bank employees, both men and women and high school as well as college graduates, these AIB courses enable employees to prepare themselves for the jobs ahead. They make it possible for bank

By Ralph A. Habas

*For men and women alike, the banking profession has unusual inducements in training, benefits, and diversity of occupation that have attracted a quarter of a million new employees to this career field since 1940.*

people to pretty well chart their own careers—to rise as far and as fast as their own ambition dictates.

The other phase of the program is for bank officers, and provides advanced studies through the ABA's Graduate School of Banking.

In addition to these ABA activities, special courses are offered at many universities under the sponsorship of state bankers' associations and other groups.

The banking industry also recognizes the importance of direct on-the-job training by individual banks. First, there is the initial training of new employees. Secondly, there is an executive development program for promising young people.

Besides bringing up more executives from the ranks than any other business—thanks in large part to its educational program

banking offers other significant advantages and attractions.

Starting salaries in banks compare favorably with those of other professions and industries for similar work. And a college graduate entering banking today in the larger towns and cities can reasonably expect to earn from

\$8000 to \$15000 a year once he has achieved officer status. On attaining a senior executive position, he can look forward, of course, to a substantially larger income.

College graduates who go into banking do better financially after the first few years, according to a recent survey, than those entering virtually any other business.

In addition to straight salary, bank workers also enjoy valuable "fringe benefits." Banks as a group offer more such benefits than any other industry, according to a U.S. Chamber of Commerce survey. Bank employees, it was found, receive an average of \$30.50 in non-wage payments for each \$100 in salary. These fringe benefits include life and accident insurance, pensions, hospitalization insurance and participation in profit-sharing plans.

In the matter of "prestige value," banking rates as one of the top four careers outranking law, architecture and dentistry—according to a recent University of Chicago survey.

Of interest also to the career-minded young man or woman is the wide range of positions open

in modern banking. Today's banks have been described as "department stores of finance," which means there's a much greater variety in their services and activities than formerly; and this means in turn that the industry today offers a much larger diversity of jobs than, say, even 10 or 20 years ago.

Besides the more familiar bank positions, the college graduate looking for a chance to get ahead and show what he can do may find his niche in such areas as business development, installment credit, management of money and securities, mortgage lending, research and investment, corporation finance, personnel administration, advertising, and public relations.

Few industries welcome women more warmly than banking. It was one of the first to open its doors to the fair sex, and today 6 out of every 10 bank employees are women. Moreover, bank management generally has no qualms about giving recognition to qualified women workers. About 10,000 women today hold executive posts in banks—a three-fold increase since 1940. In fact one out of every 10 bank officers today is a woman.

## THE C.P.P. OCCUPATIONAL DIRECTORY GOES INTO PRODUCTION

■ Questionnaires seeking information for the College Placement Publications Council's new occupational directory have been forwarded to over 6,000 firms and governmental agencies as a first step in the production of the 1957-58 issue.

Tentatively known as "Your Future", the directory has been given the official name of THE COLLEGE PLACEMENT ANNUAL, indicating its continuing function as a guide to seniors, graduate students, and alumni, as well as its relationship with the JOURNAL.

Concurrently, placement offices throughout the country have been given the opportunity to order copies without cost for delivery on or about October 1, 1957. Prior surveys indicate that some 100,000 copies will be required to supply total needs.

Speeding of the project has been made possible by

the devising of special forms which minimize the chance for error in the transfer of information from cooperating firms to the printed page. The forms are also designed to permit prompt transfer of data to IBM cards for the collation of geographical and occupational indexes. Additional questionnaires are available on request to firms which wish to file data for one or more subsidiary companies. Inclusion in the publication is limited, however, to those firms provided by the placement offices earlier in the year as companies actually recruiting on their campuses.

The COLLEGE PLACEMENT ANNUAL, endorsed by the eight Regional Placement Associations, will be the only publication to provide a broad coverage of occupational opportunities on a non-profit basis for distribution on the college campuses by the placement offices themselves.



*If YOU are graduating in Engineering or the Sciences, you owe it to yourself to investigate the career advantages of becoming a*

# CONVAIR MISSILES MAN



#### ADVANCED DEGREES

can be earned while a full-time employee of CONVAIR-POMONA. Salaries and benefits compare with the highest in private industry anywhere.



#### PROFESSIONAL ENVIRONMENT

CONVAIR-POMONA is housed in the newest kind of air-conditioned plant. Research and Development facilities manned by "name" experts.



#### PROMOTION FROM WITHIN

assures you of continuing evaluation of capabilities and the swiftest possible advancement in this constantly expanding organization.



#### CALIFORNIA LIVING

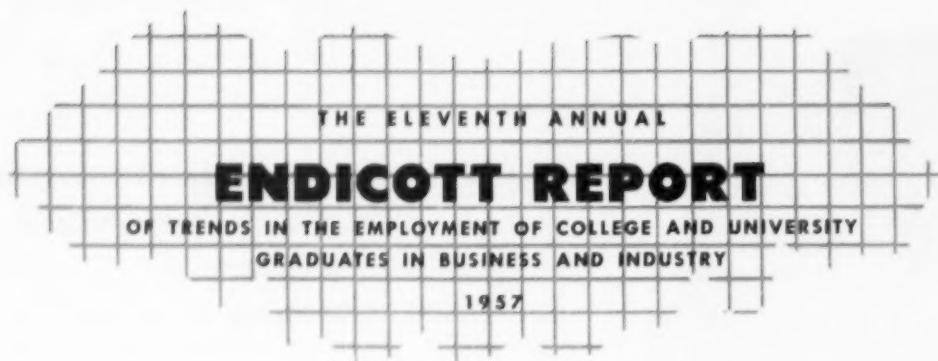
close to mountains, desert seashore. Modern homes with swimming pools are within easy price range. Year-round outdoor sports and recreation.

**CONVAIR-POMONA** in Southern California is the *first* fully-integrated missile plant in the U.S. Here the Navy's TERRIER supersonic missile is designed and built. You, as a graduate engineer or science major, can build an outstanding career in electronics and missiles systems at CONVAIR-POMONA. You will work with the most modern electronic equipment known. Better yet, you will work with the kind of friendly, informed engineer-scientist groups that are pacing the advance into outer space. And you will live where the climate and opportunities for spacious living and outdoor recreation are unsurpassed in America.

SEND RESUME FOR COMPLETE INFORMATION TO:

Engineering Personnel Dept. 4E

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POMONA, CALIFORNIA  
A DIVISION OF GENERAL DYNAMICS CORPORATION



THE ELEVENTH ANNUAL  
**ENDICOTT REPORT**  
OF TRENDS IN THE EMPLOYMENT OF COLLEGE AND UNIVERSITY  
GRADUATES IN BUSINESS AND INDUSTRY  
1957

DR. FRANK S. ENDICOTT

*Director of Placement  
Northwestern University*

■ The 200 concerns responding to the inquiry are representative of companies which actively seek college and university graduates. They are, almost without exception, companies which send representatives to various campuses and maintain close co-operative relationships with placement directors.

The reporting companies include 145 with recruiters who visit 10 or more campuses. The total number of such recruiters was 923. All reporting companies made a total of 8989 campus contacts last year, an average of 45 schools per company. Next year they plan to contact an average of 52 schools per company. Only 25 companies will contact fewer than 10 schools, while 34 will contact more than 100 colleges and universities.

Survey forms were filled out and returned during the period from November 1 to December 1, 1956. Since these companies had not yet visited many campuses, the data reported were, to a considerable extent, pre-season estimates, especially with regard to starting salaries.

In interpreting the findings of this survey it should be remembered that these are companies which actively recruit college and university graduates by making campus contacts. In most instances, these are companies

which have developed training programs for college men.

In all major aspects of the study, the general trend is up. Seventy-one per cent of the reporting companies will seek more college men from 1957 graduating classes. Specifically, they will seek 35% more men with engineering and technical training, and 30% more in all other fields. Similarly, 56% of these companies will contact more college campuses next year.

Following the general trend of the past 10 years, starting salaries will be up, and will reach a new all-time high in every field. It is interesting to note that the predicted average starting salary for all fields of over \$400 per month is about twice the starting rate 10 or 12 years ago.

It is also interesting to note that more than half of these companies increased their starting rates last year after the interviewing season began. This, of course, made the pre-season estimate reported in last year's survey about \$20 per month low. Because of the great demand for college graduates in fields such as Engineering and Accounting, it seems likely that those companies which consider their starting rate too low will raise their rates during the Spring of 1957. It appears, however, that the raising of rates did not make it possible for many companies to

*Again the Journal presents in full the results of Dr. Endicott's annual survey a well established barometer of trends in placement and recruitment.*

meet their full quota of technical men. For example, of the 81 companies who raised their rates for engineers during the interviewing season last year, only 10 met their needs in this field.

Of special interest in the current study is the information regarding the average earnings of men hired three years, five years, seven years and 10 years ago. It will be noted that, on the average, the men in non-engineering fields have somewhat higher earnings after 10 years

#### Sources of Data

The reporting companies represent a variety of business interests:

Light Manufacturing.....	32
Banking, Insurance, and Investment.....	26
Food Manufacturing and Processing.....	19
Machinery and Heavy Equipment.....	17
Drugs, Chemicals, and Medical Supplies.....	17
Utilities.....	15
Automobiles and Aircraft.....	14
Oil.....	12
Steel and Other Metals.....	9
Public Accounting.....	6
Retail Store—Mail Order.....	6
Paper.....	6
Building Materials.....	4
Textiles — Apparel — Shoes.....	4
Tires and Rubber.....	3
Carriers.....	3
All others.....	7
Total.....	200

than do the engineers. It should be remembered that, after the first years of training, these men progress on merit, and that some move forward more rapidly than others. It seems likely that increased administrative responsibility accounts for some of the higher salaries in non-technical fields. Except for the third year engineers, highest average earnings were in the field of sales.

The list of factors which greatly limit these companies in recruiting college graduates deserves careful study. Most of these factors represent problems which the companies and the colleges can attack directly and in many cases co-operatively.

#### THE EMPLOYMENT OF INEXPERIENCED COLLEGE MEN DURING THE PAST YEAR AND FOR THIS YEAR AS REPORTED BY 192 COMPANIES

FIELD OF EMPLOYMENT	CLASS OF 1956		CLASS OF 1957	
	No. Companies	No. Men	No. Companies	No. Men
<b>Engineering:</b>				
Kind not stated	38	4166	39	5075
Mechanical	48	951	64	1495
Industrial	28	233	35	353
Electrical	51	862	63	1627
Chemical	44	686	47	855
Civil	28	210	29	272
Metallurgical	11	45	11	80
Other	36	266	32	263
<b>Total Engineering</b>	<b>7419</b>		<b>10,120</b>	
<b>Accounting</b>				
Advertising	108	1533	114	1511
Chemistry	35	93	24	96
Economics	71	947	70	1137
Finance	18	63	19	77
General Business Trainees	29	182	29	289
Insurance	85	1379	87	1680
Law	9	249	6	421
Market Research	21	43	16	36
Marketing	27	61	24	58
Merchandising	20	194	21	217
Office Management	10	43	8	78
Personnel	9	31	10	42
Physics	56	168	55	135
Production Management	27	186	33	269
Sales	44	385	42	448
Secretarial	79	2065	77	3809*
Statistics	10	74	8	54
Time & Motion Study	26	87	20	96
Other Fields	29	131	32	157
Reported Totals Only	49	807	43	806
<b>Total Non-Engineering</b>	<b>9766</b>		<b>12,591</b>	
<b>Grand Total</b>	<b>17,185</b>		<b>22,711</b>	
<b>Total — Engineering, Chemistry, and Physics — up 35% for next year</b>				
<b>Total — All other fields — up 30% for next year</b>				
<b>Grand Total — up 32% for next year</b>				

\* A few large companies more than doubled their requirements in sales.

(Continued on page 49)



**SLIDING DOWN THE WAYS** at Groton, Conn., goes the USS Nautilus, newest and fastest member of our undersea fleet. During welding, Worthington heavy-duty turning rolls rotated the hull sections.

## How the world's first atomic sub was welded

Welding the hull of the USS Nautilus, world's first atomic submarine, presented a tough problem.

Submerged-arc automatic welding seemed to be ideal for the job. Question was—could you rotate the hull sections of the Nautilus to take advantage of this fast, high-quality welding method?

Worthington's answer to General Dynamics Corporation's Electric Boat Division, builder of the Nautilus, was the largest turning roll ever built.

The result? Welding of the Nautilus hull was accomplished in record-breaking time—and cost less than originally estimated. Unchanged, the Worthington roll

set-up is also being used in the construction of the nation's second atomic sub, the USS Sea Wolf.

Turning rolls for submarines aren't all that Worthington makes. The long list of Worthington-designed, Worthington-built equipment includes air conditioning units, construction machinery, compressors, Diesel engines, steam power equipment and, of course, pumps of all kinds. For the complete story of how you can fit into the Worthington picture, write F. F. Thompson, Manager, Personnel and Training, Worthington Corporation, Harrison, New Jersey. You may be glad you did.

4.25 B

**See the Worthington representative when he visits your campus**

# WORTHINGTON



**When you're thinking of a good job—think high—think Worthington**

See the Worthington Corporation exhibit in New York City. A lively, informative display of product developments for industry, business and the home. Park Avenue and 40th Street.

## ENDICOTT SURVEY

THE EMPLOYMENT OF INEXPERIENCED COLLEGE WOMEN DURING THE PAST YEAR AND FOR NEXT YEAR AS REPORTED BY 72 COMPANIES

Field of Employment	Class of 1956		Class of 1957	
	No. Companies	No. Women	No. Companies	No. Women
Accounting	7	17	8	23
Advertising	6	13	5	14
Chemistry	16	60	9	52
Engineering	10	96	9	121
General Business Trainees	16	165	11	205
Market Research	3	37	2	37
Merchandising	3	39	2	50
Personnel	6	18	6	15
Physics	5	17	4	27
Sales	3	158	3	184
Secretarial	21	121	21	143
Statistics	7	90	7	101
Other Fields	26	133	17	156
Total		964		1128

About one third of the reporting companies actively recruit college women by campus visits. Many companies in which college women are employed report that they are able to meet requirements by selecting from those who make direct application.

### TOTAL NEEDS AND CAMPUS CONTACTS — NEXT YEAR AND LAST YEAR

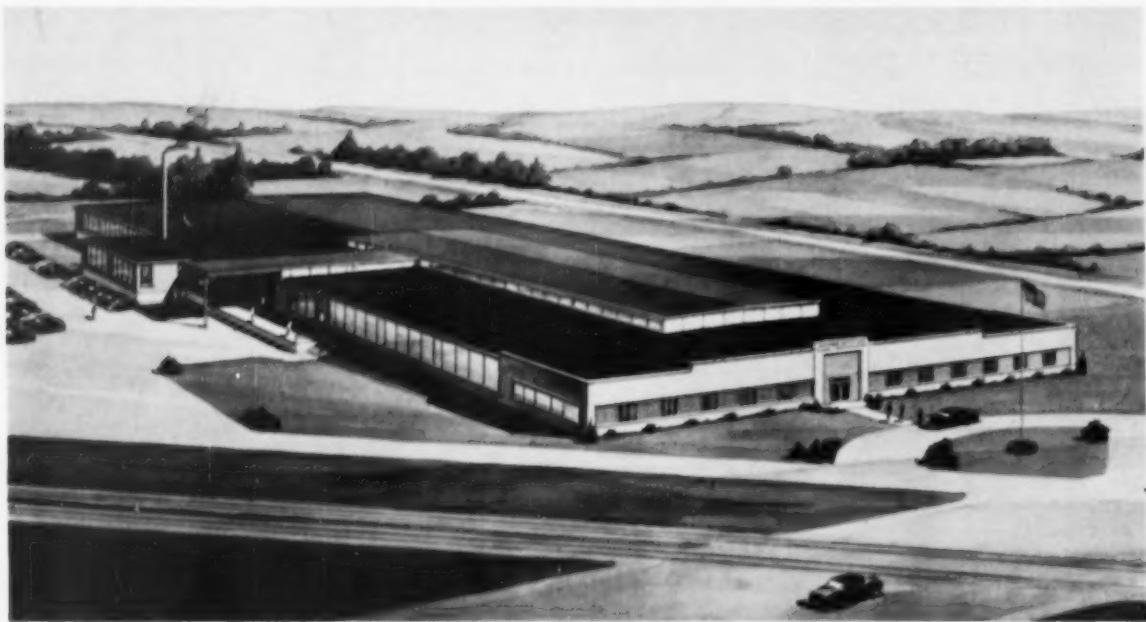
Total needs for next year:

Up — 142 Companies      Same — 26 Companies      Down — 27 Companies

Plan to contact more colleges next year	— 111 companies
Plan to contact same number next year	— 56 companies
Plan to contact fewer colleges next year	— 28 companies

Number of Schools To Be Contacted Next Year	Number of Companies
Fewer than 10	25
10 to 25	61
26 to 50	45
51 to 75	17
76 to 100	13
101 to 150	23
151 to 200	6
201 to 300	4
Over 300	1
	195

(Continued on page 51)



ANCHOR HOCKING ENGINEERING AND RESEARCH CENTER, LANCASTER, OHIO

## BUILD YOUR FUTURE WITH CONFIDENCE

Engineering, research and development, manufacturing, sales, accounting and industrial management personnel are required in the progressive and successful operation of Anchor Hocking Glass Corporation.

Anchor Hocking employs over 11,000 people, has 15 plants and 57 offices located from coast-to-coast and in Canada. It produces 2,500 different glass contain-

er items, metal and plastic closures, automatic sealing machines, and more than 1,500 items of household, institutional, industrial and premium glassware. It has challenging assignments that enable college graduates to build their future with confidence.

You are cordially invited to investigate the attractive and diversified career opportunities available with Anchor Hocking. Write to Personnel Director.



**ANCHOR HOCKING GLASS CORPORATION**  
LANCASTER OHIO

## ENDICOTT SURVEY

### AVERAGE STARTING SALARIES FOR COLLEGE MEN AS REPORTED BY 185 COMPANIES

<u>Field</u>	<u>Number Companies Reporting</u>	\$325 or less	\$326 to \$350	\$351 to \$375	\$376 to \$400	\$401 to \$425	\$426 to \$450	\$451 and over	Average Starting Salary 1957	Average Starting Salary 1956
Engineering	144	0	0	4	11	25	77	27	\$433	\$415
Accounting	116	4	9	28	40	26	8	1	\$389	\$372
Sales	93	5	18	20	22	14	12	2	\$385	\$370
General Business Trainees	104	6	16	27	29	19	6	1	\$382	\$363
Other Fields	12		1	1	3	2	4	1	\$414	\$394
<b>Average Starting Salary All Fields</b>									<b>\$401</b>	<b>\$383</b>

### BOTTOM OF RANGE AND TOP OF RANGE IN STARTING SALARIES

<u>Field</u>	<u>No. Companies Reporting</u>	<u>Average Bottom of Range</u>	<u>Average Top of Range</u>	<u>Average Spread</u>
Engineering	139	\$405	\$461	\$56
Accounting	122	\$372	\$418	\$46
Sales	97	\$368	\$413	\$45
General Business Trainees	105	\$371	\$409	\$38
Other Fields	12	\$401	\$431	\$30

Respondents were asked whether or not starting rates were raised last year after the interviewing season began. They were also asked to indicate whether or not they met all of their needs last year.

<u>Field</u>	<u>Number of Companies</u>	<u>Number of Companies</u>
Engineering	81 raised rates	10 met needs
	62 did not raise rates	20 met needs
Accounting	49 raised rates	28 met needs
	65 did not raise rates	43 met needs
Sales	42 raised rates	24 met needs
	56 did not raise rates	42 met needs
General Business	44 raised rates	31 met needs
	60 did not raise rates	43 met needs

(Continued on page 53)

*How to make the most  
of your engineering career*  
ONE OF A SERIES



## *go where research gives you plenty of service*

Many things can help—or hinder—your progress in engineering. One such is the kind of research available in the company you join.

This, by no coincidence at all, is another area in which Boeing can be of real help to you. Boeing backs its engineers with one of the most extensive arrays of research laboratories in the industry. In addition, electronic computing and data processing equipment gets you the answers you want—fast. So do such facilities as the huge Boeing Flight Test Center. And the Boeing wind tunnel, most complete and versatile privately owned tunnel in America. This outstanding facility, capable of velocities up to Mach 4, is at the full-time disposal of Boeing engineers. It has enabled Boeing to gain more wind tunnel time in the field of jet aircraft than *any* other company.

These facilities help Boeing engineers maintain leadership in advanced fields of flight. They help Boeing research engineers and scientists extend the boundaries of knowledge in many fields. They could help you get ahead.

At Boeing you'd enjoy many other advantages; a high starting salary, career stability, a liberal retirement plan and company-paid graduate study programs. There are *family* advantages too; a choice of three sections of the country, each with excellent housing and schools, shopping centers and abundant recreation facilities for the whole family!

*NOW is the time to start planning ahead.  
Consult your Placement Office, or write:*

**JOHN C. SANDERS,**  
Engineering Personnel Administrator,  
Boeing Airplane Co., Seattle 24, Washington

**FRED B. WALLACE,**  
Chief Personnel Engineer,  
Boeing Airplane Co., Wichita 1, Kansas

**BOEING**

Seattle, Washington   Wichita, Kansas   Melbourne, Florida

## ENDICOTT SURVEY

### EARNINGS OF COLLEGE MEN FROM PREVIOUS GRADUATING CLASSES

Respondents were asked to estimate, as accurately as possible, the average monthly earnings, November 1956, of college men hired from previous graduating classes who started in the fields indicated. A tabulation of responses follows:

	Under \$400	\$400 to \$500	\$501 to \$600	\$601 to \$700	\$701 to \$800	\$801 to \$900	\$901 to \$1000	Over \$1000	No. Companies Reporting	Average Salary
<b>Engineering</b>										
3 yrs.		31	59	4					94	\$527
5 yrs.		6	53	33	2				94	592
7 yrs.		2	14	59	13				88	650
10 yrs.			3	18	33	14	1		69	740
<b>Accounting</b>										
3 yrs.	4	49	14						67	491
5 yrs.		20	29	13					62	549
7 yrs.		5	24	10	6	2	2		49	630
10 yrs.			2	10	13	6	1	4	37	778
<b>Sales</b>										
3 yrs.	7	29	16		1	1			54	498
5 yrs.	1	15	23	8	2	1	2		52	599
7 yrs.		3	12	20	8	2	2	2	49	700
10 yrs.			2	12	11	4	4	4	37	826
<b>Gen. Business</b>										
3 yrs.	2	51	21	1					75	478
5 yrs.		18	43	11	2				75	556
7 yrs.		5	28	12	10	4	1		60	640
10 yrs.			8	13	14	8	3	5	51	768

### EMPLOYMENT OF GRADUATES IN THE LIBERAL ARTS

Because of increased interest in the employment of graduates in Liberal Arts, responding companies were asked to indicate what percentage of the college men hired last year could have qualified by graduating from a College of Liberal Arts.

A total of 190 companies supplied information on this question. It appears that men from Liberal Arts colleges could have qualified for about 37% of all jobs for which college graduates were employed last year by these companies. The percentage who were graduates of Liberal Arts colleges was about 27. Half of the companies indicated that they hired about as many such men as could qualify.

### FACTORS WHICH LIMIT COMPANY EFFECTIVENESS IN RECRUITING WITH NUMBER OF COMPANIES INDICATING EACH FACTOR

(183 companies reporting)

- 92 The number of college graduates available is too small.
- 60 Location of offices or plants is sometimes a handicap.
- 85 College professors need a better understanding of our type of business.
- 55 Inadequate vocation counseling in colleges.
- 80 The quality of many applicants is below our standard.
- 47 We have not developed adequate literature for colleges to use.
- 74 Company not well known on college campuses.
- 61 Too many graduates have not decided what they want to do.
- 44 Colleges have inadequate facilities for campus interviews.
- 60 Graduates lack interest in our type of business.
- 41 We do not have enough time, staff, or budget to do the best job.

(Continued on page 54)

#### ENDICOTT SURVEY

- |  |   |   |
|--|---|---|
| 36. College placement services should be more centralized.                       | 27. College placement offices are inadequately staffed.                                       | 13. Company recruitment program is too decentralized.   |
| 34. Our needs are not determined early enough in the year.                       | 22. Our training program is not as attractive as it might be.                                 | 11. Departmental requests are not high enough.  |
| 33. We should hire more graduates in Liberal Arts.                               | 21. We should visit more schools.   | 10. Top management should give more support to college recruiting.  |
| 31. Inadequate information about students at the time of the interview.          | 19. Too many supervisors are not sold on hiring and promoting college graduates.              | 6. Colleges do not stress the general, cultural, and liberal arts courses sufficiently to meet our needs. |
| 30. We need a more adequate program for advancement after college men are hired. | 18. Departmental requests for new men are unrealistically high in this market.                | 5. College placement services should be more decentralized.   |
| 30. Our starting rates are too low.  | 14. Colleges do not offer enough specialized and technical courses in fields of our interest. | 5. Company recruitment program is too centralized.  |
| 29. Our interview procedures should be improved.                                 | 13. We should hire more draft-eligible men.   | 2. College placement offices do not co-operate fully.   |

#### Engineers . . .



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JC 57-1

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## REGIONAL ASSOCIATIONS



The Rocky Mountain Annual Conference, Oct. 26-27

The conference opened Friday morning and after the usual preliminaries Don Bridgman, Director of College Relations, American Telephone and Telegraph Company; R. W. Schlicht, Director of Placement, Augustana College, South Dakota; and Alex A. Daughtry, Director of Field Services, Kansas State Teachers College, Emporia, Kansas presented the topic — "What are the prospects for providing well-trained college graduates in the next five years? What are the problems?" After their presentations 12 discussion groups formed and reported back to the general meeting before the close of the morning session.

Statistics were presented showing the anticipated increase in



Newly elected Board of the Western College Placement Association (front row from left) includes: W. B. Shuster, Nansi Corson, B. T. Mullane, Jane Thompson, R. F. Menke, Viva Armstrong, J. Johnson, and J. C. Sanders. (Second row) Vice-president W. M. Kidwell, Treasurer H. Gatzke, President W. M. Bristol, B. K. Duffin, M. S. McGuffin, and W. Burch.

In inset, Past President Menke (right) welcomes President Bristol who takes office in June, 1957.

the number of college students during the next 15 years with the conclusion that we just don't have a sufficient number of

people available to meet technical needs. It was pointed out that colleges are doing everything possible in expansion programs to take care of classrooms, dormitories, dining halls, etc. but "adequate personnel," the most important ingredient, is woefully lacking. Our country's population has doubled in the last 50 years but we now need four times as many professionally trained people. About six out of every ten young people now graduate from high school.

The group was concerned about greater utilization of graduates and securing an increase in the number of students in college pointed toward areas of critical shortage. Much consideration was given to the question of having employers use more college graduates with general

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PHILADELPHIA, PENNSYLVANIA

training particularly from the liberal arts division, and using more engineers and scientists now being diverted to sales and purchasing in fields of their specific training. More adequate counseling programs on the high school level could do much to help those students in their choice of careers. Industry could help greatly in this.

### Seek Better Utilization

A reappraisal of real needs is essential to see that we make the best use of our manpower. Some considerations presented were: Better utilization of present and future personnel, elimination of human stockpiling, making teaching more attractive in an effort to obtain needed personnel (perhaps using some professional people from industry for some night classes), summer jobs for teachers in industry, better counseling of young people in the choice of careers, improved morale and pride in career, and greater efforts on the elementary and secondary school level to explain opportunities and careers in business, government, and industry so that more capable young people would prepare for and enter such careers, assistance for capable young people who could not afford a college education was also discussed.

The luncheon meeting question was — "Do students learn habits and attitudes in the university community that are not acceptable in business and industry?". J. C. Ellsworth, Vice-President, California Bank, Los Angeles, E. C. Hofmann, Personnel Director, Central Bank & Trust, Denver, and Clifford Houston, Dean of Students, University of Colorado were the speakers and the small discussion groups again formed and reported back to the group. University life allows certain freedom not available in business life. It should teach greater discretion in opinions, better use of time for adaptability to the regular

hours of work, more planning for proper use of leisure time and meeting deadlines, better work habits, more penalties for errors, more incentive for superior work, more regular work habits that penalize the piling up of work, play down the mythical superiority of college men, tone down the over-rated value of a diploma as such, teach dignity of work, willingness to pay the price, desire to demonstrate ability with more emphasis on what you can contribute rather than what you can get out of it personally.

It was pointed out that college is a four-year war of liberation from the influence of the home, church, and community. Immature young people come into a very complex atmosphere. They want to be free yet they want to belong to something. They have to establish their own set of values and mature as their training progresses. Students develop personal integrity, learn to become self critical in a constructive way, grow out of immature habits, learn moderation in most things, and acquire human and technical knowledge to help chart their future.

Some have not matured sufficiently by the end of their college days to make a smooth transition from the campus to the vocational world and many, perhaps, place too much emphasis on values of campus life that are not important in business, but in general they have benefitted greatly from their training.

### Many Lack Patience

Many have not learned to communicate effectively, or to pay the full price required for making a living. They are impatient for success, overrate security, and are not always able to adjust to career obligations which place advancement strictly on merit and give no special preference to a diploma.

Business and industry have an obligation also in helping stu-

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**RADIO CORPORATION of AMERICA**

College Relations, Dept. CR-1C  
Camden 2, N.J.

dents make the transition, finding their places in life, acquiring a true perspective and a sense of belonging, and doing their part in the world of work. They need to help the graduate realize that discretion, proper planning of time, incentive values, prestige, and promotion are things you earn and the college preparation only helps you to progress along the way.

#### Motivation Has Changed

After an enjoyable bus ride into the Colorado Rockies, the evening meeting was held at the Severance Mountain Lodge near Rollinsville, Colorado. The evening topic was "Causes of termination during the first two years of employment—prevention and replacement." M. M. Mandell, Chief, Administration and Management Testing, Civil Service; J. A. Pope, Manager of Industrial Relations, Bendix Aviation, Kansas City; and Miss M. Helen Carpenter, Associate Director, Placement Bureau, Uni-

versity of Colorado were scheduled on this program.

Most people in the business world grew up, obtained an education, and developed their places in business and industry under far different attitudes and motivation than we have today. They had to make good to survive. Today graduates have many job choices and sometimes develop an exalted sense of their own importance not fully warranted by their qualifications. This is a very important reason why college graduates frequently change jobs during the first few years of employment. We have unprecedented prosperity and unparalleled demand for trained people. Alarmists tell us we are losing ground to the communists in the training of technicians. Historically our finest achievements have been born of a necessity for facing problems of unbelievable magnitude. New heights must be scaled, new worlds conquered. Sometimes

because of background, immaturity, and indecision, youth forms strange and invalid impressions of the business world, ideas not always compatible with the policies and practices of it. Some re-learning and a new orientation is necessary for proper adjustment.

#### Program Demands Stability

Business and industry can do more than has been done to instill contentment, interest, and a sense of responsibility. A sound program of administration of salaries, both among recruits and regular employees, can add to stability. Retirement plans, vacations, and other common "fringes" play their part. Any person who, with his career ahead of him, can be lured into an organization wholly by these things is indeed shortsighted. The employer who depends on these largely as an inducement to employment is being unrealistic, if not deceptive. Retirement plans are meritorious and have many values, but control of turnover, which occurs mainly during the first five years, is not one of them. Job contentment involves true, sincere, and earned praise, a sense of being trusted, responsibility with freedom to exercise it, a sense of belonging, the feeling of being on the team, the joy of association with others in a worthwhile enterprise, and the feeling of being wanted. All are important. The formula is simple with no claim for originality. It was given nearly 2000 years ago as "Whosoever, therefore, ye would that men should do to you, do ye even so to them."

J.M. Rhodes, Assistant Placement Director, University of Arizona discussed—"Placement Possibilities for Liberal Arts Graduates" at the Saturday morning meeting, emphasizing the following points. Most liberal arts graduates do not create placement problems. Most of them make their own plans and actually find their own jobs—

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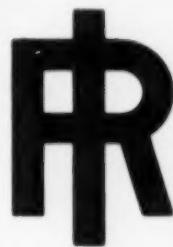
Mutual and United offer planned programs for advancement. The rapid growth of these companies has meant quick advancement for our young people. Our department heads and executives are "home grown" which means almost limitless opportunities for conscientious young men and women.

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OMAHA, NEBRASKA



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about half enter professional schools, many girls marry and turn to homemaking, others enter military service, take jobs in civil service or social agencies, and a variety of other positions. Only a small per cent take jobs in business or industry. The problem, if there be one, is not one they create, but one of which they are the victims. Some liberal arts graduates have changed courses but this happens in all departments and should not place a stigma on either the person who changes or on the curriculum to which he turns. In most reputable institutions those individuals who lack the native ability to serve society as college graduates are dropped from the rolls before they reach graduation, and consequently the inept are not among the graduates. You recruiters, under pressure to hire a quota of technical people, are responsible for hiring non-technical people who are not qualified for the jobs in question. When they do not do as well as expected you criticize them for the problem you created when you proselytized and converted men to a field of work for which they were ill prepared.

#### New Perspective Needed

College placement people sometimes lose perspective and talk about the sad prospects awaiting liberal arts graduates. We are dazed by the big salaries available for technically trained personnel and measure success by the rule of the first year's salary.

People who prefer to study liberal arts are different in their value systems and in their perceptual preferences, from people who study mechanics or pure science or fine art. Liberal arts people exemplify the social type with a personality dominated by social and political values. The liberal arts program develops the whole man, not merely that part of him which must earn a living. It should add many new interests to living and produce

the maturity appraised as the greatest asset of manhood in any field of endeavor.

#### People Are Priceless Commodity

We should recognize the uniqueness of each individual. We need to become more appreciative of people's value systems and more sensitive to the effects of value on perceptions and decisions. People are the world's most priceless commodity. Intangibles involving people form the world's largest items of business. Individuals who prefer to study the liberal arts courses are especially equipped by temperament and training to deal in intangibles and in this human commodity. Let us place them there.

The Business, Industrial, and Governmental groups and the Placement Representatives then held separate business meetings. The name of the organization was changed to the Rocky Mountain College Placement Association. A revised constitution was adopted and the group voted to affiliate with the College Placement Publications Council. Representatives did not feel that the Rocky Mountain group should amalgamate with another similar regional society. They felt that the informality and relatively small size of the group was one of its strongest points. If the organization merged with another regional group it would lose much of its "personal touch" and confusion would be accentuated at conferences because of increase in size. Officers elected were:

Willard Edwards, University of Colorado—President; Warren F. Lee, University of New Mexico—Vice-President; Genevieve Fisher, Colorado A. and M. College—Secretary-Treasurer.

Business, Industrial, and Government Representatives are: Glenn Pickett, Mountain States Telephone, Denver, Colorado; Brian Finley, Sandia Corpora-

tion, Albuquerque, New Mexico; C. M. Urbach, United Air Lines, Denver, Colorado; E. E. Hoffmann, Central Bank & Trust Company, Denver, Colorado.

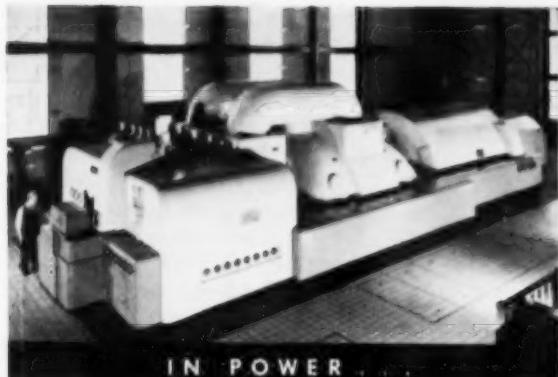
The final session featured a short lively discussion of "What are graduates offered—gold, glitter, or goop?" by W. V. Burger, Dean of Students, Colorado School of Mines; Keith Duffin, Director of Placement, Brigham Young University, Provo; and Henry Hahn, Director of Placement, Eastern New Mexico University.

#### Services At High Level

It was generally agreed that while there were a few exceptions, most company recruiting and college placement services were on a high level. We agreed that while there may be misunderstanding in some cases, there was no serious misrepresentation on the part of business, industry, government, and the college. Gold and the opportunity to serve, advance, and do the work one enjoys is offered in abundance. Glitter sometimes confuses the issues but is detected rather easily. Goop does not belong in the picture and its presence reacts quite seriously when it is offered. The main problem is one of communication—of fully understanding each group's position. We all should work hard on the problem of improving channels of communication and thus make our services more effective.

The meetings were interesting and fruitful. Everyone present participated in all of the committee assignments and became a definite part of the program. All agreed that the time, effort, and money spent were definitely worthwhile.

Lyle N. Slonecker,  
*Director of Placement*  
*Colorado A and M College*  
*Fort Collins, Colorado*



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**OPTIONAL PROGRAM**—Trainee plans own program and may revise it with changing interests. Competent counselors are always available.

**RESULTS**—Many members of the Allis-Chalmers management team are graduates of this excellent training program.

## WE'RE IN THIS TOGETHER

*Continued from page eighteen*

that if summer salaries being at the rate paid regularly by industry for equal services would entice the faculty member away, he would soon be leaving the field of education anyway.

A caution was included in another questionnaire that industry not engage in the ulterior practice of setting up summer jobs as an enticement to fulltime employment away from the campus.

One contained almost a plea that companies become more pronounced in their practice of permitting qualified men who like to teach to do so, even on a very limited scale. The increasing shortage of teachers in a neighboring college or university would thereby be helpfully reduced.

5. *Providing a professorship, at least in part* The already developing shortage of qualified faculty members is the most serious problem with which colleges and universities are confronted. In another two years it will assume alarming proportions. Improved salary schedules will help to keep teachers from leaving the field. Means for bringing about such improvement are badly needed.

### Asks "Salary Supplementation"

I want to suggest a plan which, while akin to "endowing a chair," is less formal, requires less money, and is quite workable. We shall call it "salary supplementation."

Let us imagine that a given institution has stretched its anticipated income into the most liberal salary scale it can possibly develop. Still, to retain present faculty members and to compete on the open market for new ones,

the average salary for its top ranking positions should be, shall we say, \$1,000 higher. Thus the amount of a "salary supplementation" unit is set at \$1,000. One corporation, by providing ten units, another seven and one-half, and so on, can help immeasurably an institution harassed with inadequate salaries.

Such salary supplementation is perhaps more needed right now than are more scholarships viewed from the over-all interests of higher education. And, like the average scholarship, salary supplementation, once set up in the gift budget of a company, should be made dependable by being continued from year to year.

### What the Colleges Can Do

This second main section of the questionnaire listed three topics—removing student deficiencies, bettering recruitment by improving placement services, and ways and means of bettering communications between business and industry and colleges and universities.

1. *Removing student deficiencies*—The three fields in which college students show the greatest deficiencies in practical employment after graduation are English, mathematics and the sciences. Of these three, the responses singled out English deficiencies as the most serious and most prevalent.

The colleges have had a disposition to pass the blame on back to the high schools, charging that students enter college with such lack of fundamental background that the deficiencies cannot be removed during the regular four years of college work. Instead of each casting the blame on the other, both

high schools and colleges should spend their energies on improving instruction.

The University of Illinois has started a trend in this connection which doubtless will gain momentum. It has to do with remedial courses in the freshman year designed to remove or at least dilute deficiencies with which many students enter college. Beginning in 1960, Illinois will no longer offer such remedial courses in English. The "Illinois Ultimatum," issued in the spring of 1956, stated the student entering high school this fall will survive or perish when he enters the University in 1960, depending upon the quality of his high school preparation.

### Illinois Shows Courage

In issuing this announcement, the University asserted its desire to be of all possible assistance to high schools and invited them to write in for a special pamphlet giving suggestions for the improvement of the teaching of high school English. A rush of requests for this pamphlet from Illinois and from other states is reported. Doubtless the courage of Illinois will lead to better English instruction over the country, both at the secondary and college levels.

A fourth deficiency, *lack of respect for hard work*, was entered on one return with the pointed comment, "Many students complete college with the notion that a degree is a life-time pass into leisure. Until colleges, high schools, elementary schools, and parents have corrected this misconception, industry will be plagued by all varieties of deficiencies." To which we would all say "amen!"

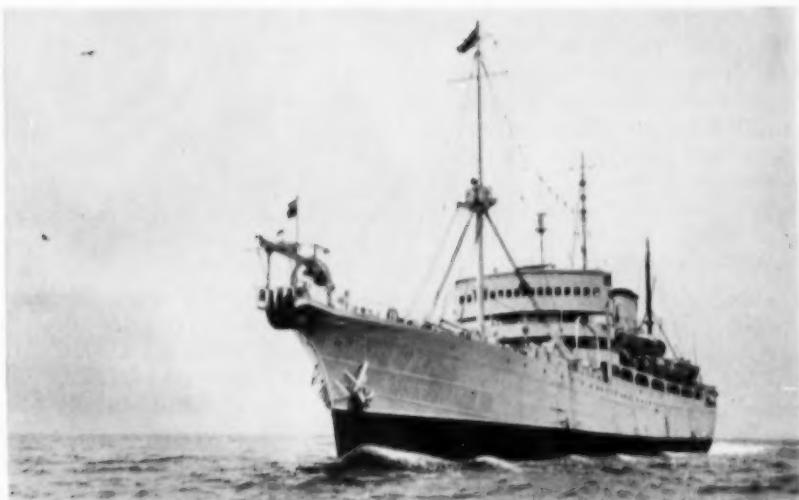
2. *Improvement of Placement Services*—Any improvements in the efficiency of a college or university placement office would obviously improve recruiting success by company personnel representatives. Hence this topic is of core interest to all members of your Association.

# **Victory**

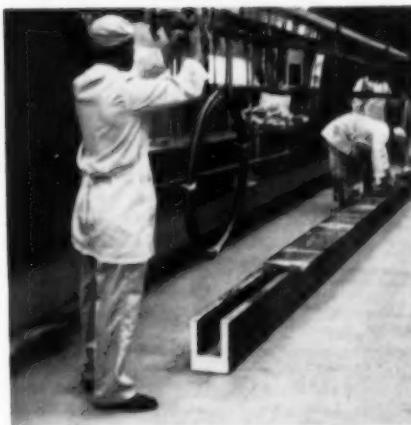
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Teamwork characterized the Bell System's role in the success of a tremendous undertaking: laying the first transatlantic telephone cables.

One challenge given engineers and scientists at Bell Telephone Laboratories was that of designing equalizing networks and amplifiers to be placed in the cables every 40 miles to compensate for the huge attenuation losses. Electron tubes of unrivaled endurance were developed, capable of operating for up to twenty years.

Western Electric, manufacturing and supply unit of the Bell System, assembled the repeaters in a special plant under clinical conditions. A mere speck of dust could fatally upset the sensitive amplifiers.

The delicate and demanding job of laying the cables was supervised by engineers from Long Lines Department of A. T. & T. New cable-laying equipment was designed, and exacting procedures were devised so that the cable could be laid smoothly and safely on an ocean floor in places more than two miles deep.

Teamwork helps Bell System engineers and scientists to anticipate and provide for America's growing communications needs, no matter what the magnitude of the job to be done.

Able, imaginative young engineers and scientists will find absorbing careers with the Bell Telephone Companies, Bell Telephone Laboratories, Western Electric and Sandia Corporation. Your placement officer can give you more information about career opportunities in the Bell System.



**Bell Telephone System**

The number one need for improvement which was pointed out repeatedly in the answers received was for better physical facilities, both for the placement office staff and especially for interviewing rooms. I would judge from the returns that most colleges are deficient in the matter of adequate facilities.

There is cause for concern in the fact that even the few which have been reasonably well equipped are losing ground in the competition between need for faculty offices and interviewing rooms. It scarcely need be added that this competition is due to increasing enrollments, of which we have apparently but seen the beginning.

The colleges would therefore ask for a degree of understanding by company representatives when this year or next they may be assigned to less satisfactory interview rooms than they enjoyed last year. On the other hand, no college or university should ask

for such a forgiving reaction on a permanent basis. Rather, new interview facilities should be included somehow in plans for expansion.

The need of a larger placement office staff was a frequently listed suggestion. This must be a common problem and would suggest a better job of presenting the placement budget requirements to the president or other budget officer, together with a good presentation of the value of the placement service as a necessary and integral part of the institution.

There were several miscellaneous proposals for improving the placement service. Those included:

- a. More consistent year-around contact between educational institutions and industry. As one means, an occasional month's leave of absence with pay might well be granted the director of placement of the college

to work in the personnel office of one or two up-and-coming companies or corporations. The purpose and value of such an arrangement are obvious.

- b. More understanding of the purpose and function of the placement service by members of the faculty. A presentation by the placement director to the faculty at a regular meeting should be of help in this connection.
- c. More cooperative help on the part of industry in responding readily to follow-up programs on graduates carried on by placement offices.
- d. Better coordination between the company president and the recruiter who visits the campus. It seems, for example, that the president announces it is the policy of the company to employ broadly trained individuals

## *Horizons Unlimited!*



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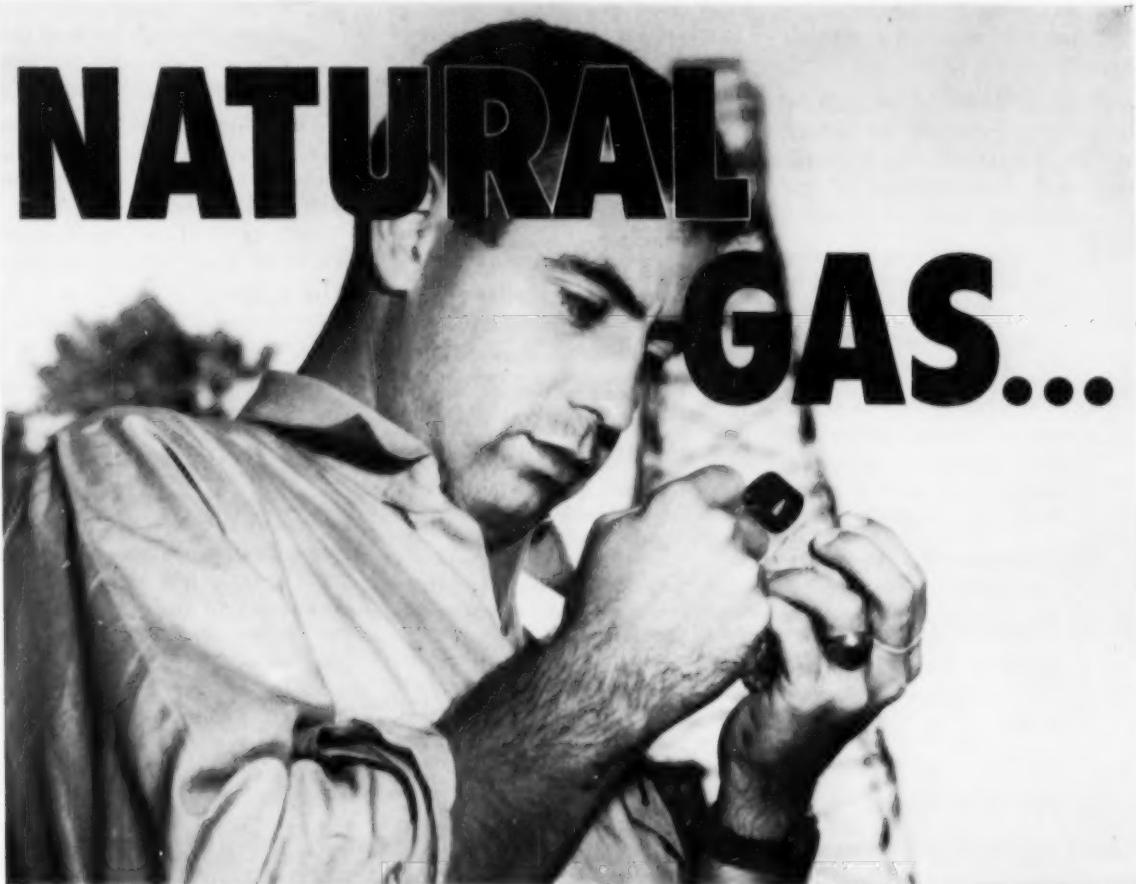
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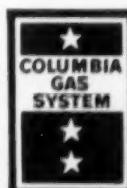
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*For Columbia Gas Publications, write to: David R. Edwards, Vice President and Director of Employee Relations, Columbia Gas System, 120 East 41st Street, New York 17, N.Y.*

### THE COLUMBIA GAS SYSTEM

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but when the recruiter arrives he is seeking specialists.

Finally, I would suggest a reciprocity between the school and the company in the preparation and dissemination of information and data as follows:

- (A) By the placement service a data sheet including photograph for each student who registers with the office.
- (B) By the company—a small concise, factual and readable brochure or pamphlet describing such points about the company as:
  - a. Organization and location data.
  - b. History of the company.
  - c. Type of services rendered, including products made.
  - d. Financial standing.
  - e. Personnel policies.

Each student to be interviewed would be better prepared for the conference if he were handed this information in advance. Also, a job description of each position for which the recruiter will seek applicants on a given campus visit would be helpful for distribution to interested students a day or two previous to the visit.

*3. Improving Communications Between Colleges and Universities and Business and Industry*—An observation in a letter returning the questionnaire provides a very good opening paragraph for this section. The letter stated, "It is my general observation that industry has held itself too aloof from colleges, and as a result, is not fully acquainted with their problems. Similarly, in some instances, college people have had a tendency to seclude themselves in academic 'ivory towers' to such an extent that they may not keep themselves up to date on the changing scene in the business world."

A good many practical suggestions for the establishment of better communications can be gleaned from questionnaire responses. These include:

- a. Conferences between leaders in industry and higher education. An outstanding example of such a conference was that held by the Southwestern Bell Telephone Company in Dallas on February 20-22, 1956.
- b. Use of qualified faculty members to assist in industry training programs.
- c. Use of qualified speakers from industry for classroom discussions on campus.
- d. Regular field trips by senior students and faculty member(s).
- e. Stronger vocational counseling programs on campus.
- f. Career day forums.
- g. The use of industry-supplied films and other visual aids, provided they do not carry too much "advertising."
- h. A general campaign by the administration to impress every college or university employee that he is himself at the heart of good public relations.
- i. One college placement director would request industry to send to the placement office on campus carbon copies of all correspondence between the company and students or faculty for the purpose of better correlating services. This would doubtless be a warm topic for a "seminar" discussion.
- j. As the last in this list of suggestions, I would like to toss out a "trial-balloon question." Would it be possible for companies which already have well established "employee rating

systems" to pass summaries of their ratings back to the schools from which their employees graduated?

The colleges would thereby be able to accumulate systematic evidence on the consistent strength and weaknesses of their "products". This information would be most helpful to make strong points stronger and to remove consistently reappearing weaknesses.

In addition to a study of specific characteristics such as technical efficiency, punctuality, creative ability, etc., it would be interesting to take a long-time look at the records of graduates. For example, do the graduates start a little less slowly in the techniques of the job but after ten years are higher up the ladder than the graduates of my school? If so, I need to urge upon our faculty a study leading to more of general education and emphasis upon human relations. The point is, we need to have factual evidence back on the campus concerning the success of our graduates. The personnel records, at least of the better companies, contain much of that evidence. Can we get together in mutual helpfulness on this important matter?

The new President of the Ford Foundation, Dr. Henry Heald, was for several years President of the Illinois Institute of Technology and, until accepting the Ford position, President of New York University. Dr. Heald states, "Our greatest shortage is not money. It is first-class brains."

To find and better develop them requires "imagineering," a term coined by the Aluminum Company of America. The Company defines it as "letting your imagination soar and then engineering it down to earth."

May we in both business and industry and on college and university campuses be capable of first quality "imagineering!"

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Besides engineering, Dowell offers the college graduate other important and interesting careers in chemistry, physics, equipment design, maintenance, accounting, management.

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*Services for the oil industry*



A Service Subsidiary of The Dow Chemical Company

## INDUSTRY'S STAKE IN OUR PROFESSORS

*Continued from page twenty-seven*

ed to constant re-evaluation of his courses and curriculum. They help him know where his graduates will fit best. Summer activities offer the greatest possibility for variety of experience, particularly if repeated regularly in different companies. It will thereby contribute breadth of experience and perspective to an extent which can be gained in no other way.

The work experience alone is worthwhile and the opportunities open to the professor for summer work continue to expand. However, the increase of conscious efforts to help the "summer hire" professor in industry see beyond the individual group to which he is assigned and gain a broad picture of the activities of the whole company is even more promising. The initiative for developing summer employment programs is held by the industries themselves and such programs are implemented mainly through the efforts of the same men who are responsible for college recruitment.

### Vision Led To Programs

The vision of men like Maynard Boring at the General Electric Company, Al Soderquist at the Boeing Airplane Company, and many others has been evident in various activities for college faculty members sponsored by companies such as General Electric, Boeing, Du Pont, and International Harvester. Programs sponsored by these groups have been described in the references given. These programs are still carried out with only minor changes in detail to improve them from year to year.

Other companies are also developing interests in offering the professors opportunities for a

broad look at their organizations through planned familiarization programs in addition to offering specific job assignments during the summer. The programs developed in five other companies are to be discussed here.

The trend toward broadening the scope of the activities of the professors during summer employment is well illustrated by the program inaugurated in the Autonetics and Missile Development Divisions of North American Aviation in Downey, California. For several years college faculty members have been accepted as "summer hires" but the only formal effort made to assist them to become thoroughly familiar with the over-all organization, activities, and policies of the company has been through the brief indoctrination given all new employees.

In 1956, however, a full-fledged formal program was initiated for professors employed for specific summer job assignments. The program, organized through the office of the College Relations Officer in the Engineering Personnel group, had fourteen faculty members participating. One hundred thirty students took part in somewhat similar activities for students.

This initial program was given practically no advance publicity but is to receive more attention in subsequent years. The number of participants which can be accommodated is limited in the appropriateness of applicants' qualifications to fit the assignments available any given summer. It is essential that no one be misplaced. A moderate increase over this year's number is expected but an absolute limit would be quickly reached because considerable importance

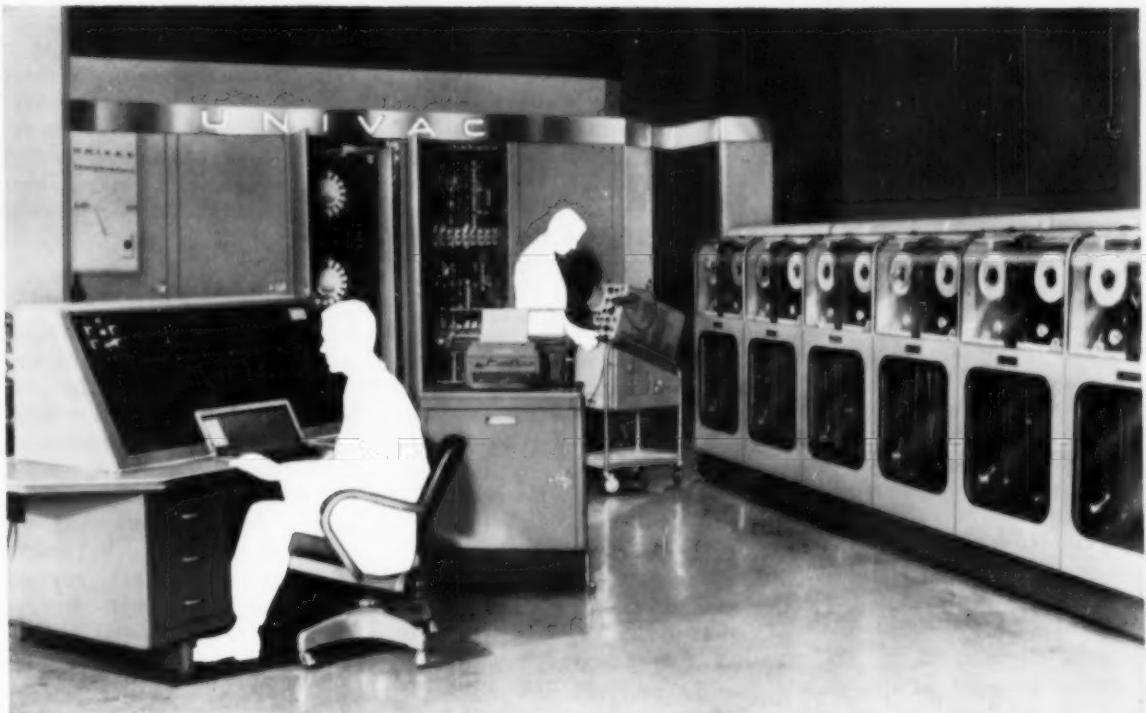
is attached to maintaining a close personal relationship in which professors can become intimately acquainted with key company personnel. In the future, probably a portion of each year's group would be encouraged to return a second summer in instances in which continuation of the assignment warrants, but additional participants would be selected each year with the purpose of contacting areas and schools not previously represented.

The 1956 formal program consisted of a series of one and a half to two hour seminars in which qualified company officials discussed with the professors the various activities and interests of the organization, a luncheon with supervisory personnel, two tours of divisions of the company located at other sites in the Los Angeles area, and a social program of weekend tours, trips, and other functions in which professors and their families became acquainted on an informal basis with other participants and with various permanent company staff members. A trip to visit the major technical schools in the area was also arranged.

### Provisions are Cited

Professors were paid on the basis of their technical background and qualifications for their individual job assignments. An allowance was given for travel from their college locations to the plant at Downey, and upon arrival the facilities of the company housing office were made available to aid professors in arranging suitable accommodations for the summer. Other regular company services were also provided, such as the recreation office where tourist information and tickets could be obtained for activities going on in the area.

The philosophy behind the North American program probably represents the thinking go-



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ing on in many other companies as well. According to J. J. Kimbark, College Relations Representative, the company feels a growing recognition of responsibility to "plow back" something into the colleges from which it draws a product on which the company is built. The faculty summer program is one of the ways in doing so. The expense of the program can be justified within the company in the short run on the basis of work accomplished by the "summer hire" professors, on the intermediate period from a public relations standpoint and as a help in recruitment, and in the long run on the belief that it will aid in the improvement of the future graduates through teachers with broader outlook and perspective.

Other divisions of the company, Rocketdyne and Atomics International at Canoga Park and the Los Angeles Division,

also employ professors during the summer but the special activities in these divisions for professors were less extensive in 1956 than at Downey. Pooling of experience and ideas in advance planning for 1957 is expected to result in an expanded over-all program with more coordination among the divisions.

#### Program Now Formalized

Another example of progress in development of summer faculty employment is the program initiated at East Hartford, Connecticut, in 1955 by Pratt & Whitney Aircraft. Believing that "both education and industry can profit by closer contact" between professors and the engineering staff of the company, informal summer employment has been carried out for a number of years. However, beginning in 1955 the efforts have been formalized and in 1956 a group of twenty-three men, representing the staffs of twenty different schools, participated in a series of six special functions in addition to their summer work assignments.

Participants were introduced to the company at a welcoming dinner and social evening early in the summer. The aims and scope of summer activities were discussed. A series of five Thursday conferences and tours during July and August were used to introduce them to the Hartford Graduate Center, to the Engineering and Manufacturing facilities and activities, and to the history of aviation with particular reference to Pratt & Whitney's contributions.

Each professor was provided a list of employees who were graduates of his own school and encouraged to look them up to discuss their individual observations pertaining to the company, their Alma Mater, and the appropriateness of their academic preparations for the particular place of each in the company and his life as an engineer or scientist.

*Occupational Information and  
counseling available*

Participants were reimbursed for travel expenses and paid a salary commensurate to their assignments and qualifications. Aid in locating accommodations available for sub-lease during the summer months is available through the company housing office.

The formalization of summer activities at the U. S. Steel Corporation for college faculty members began in 1952 with the objective of providing the professors with "practical experience in steel operations and to further their knowledge of the operation of the company as aids to them in teaching and counseling engineering students." By means of an annual summer program the company hopes to receive beneficial suggestions as well as accomplish significant work on specific job assignments.

The U. S. Steel program is of two months' duration. It begins with a two-day introduction and plant visit based at the general office in Pittsburgh. Participants then go to a specific job assignment for a period of about seven weeks at the particular plant indicated by their qualifications and interests. After the work experience, the group is assembled again for one week in Pittsburgh to round out the picture. This is done through a study of the over-all functions of the company, of the operations of its facilities in the Pittsburgh area, and through lectures, discussions, and plant tours.

Professors are selected from colleges and universities located primarily in states near plant areas. Each participant is paid a salary based on his college salary, reimbursed for living expenses while attending the sessions in the general office in Pittsburgh, and the cost of travel in connection with the program is provided.

The "Summer Industrial Experience Program for College Professors" has been carried on

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at the Westinghouse Electric Corporation in Pittsburgh, Pennsylvania, annually since 1948. It is directed toward those who can benefit most by it, the young staff members in the ranks of assistant professor or associate professor. A broad range of assignments are available on a two to three month basis in which each young teacher can face and solve a challenging problem of immediate practical importance to the company.

One man recommended by the dean of each of approximately twenty schools is invited to participate each year. Each participant is offered a fixed salary and reimbursed for travel expenses to and from the work location.

The actual contribution of these men to company projects is considered to justify the cost of the program but the company is also confident that first-hand experience of teachers in industry

will contribute materially to the education of future students.

To broaden the scope of information provided the professors during their stay at Westinghouse, the work experience gained through the Industrial Experience Program is supplemented by a one-week "Industrial Seminar" conducted each summer. In addition to those with summer job assignments about twenty other professors are also invited to participate in the seminar. During the five days of the seminar, representative company officials describe various phases of the company's interests in talks and panel discussions. Tours of several of the main company divisions provide a picture of the physical facilities of each. As a result, each professor can more accurately advise his students about Westinghouse in particular and the industry it represents in general.

An annual "Conference for Engineering Educators" has been conducted annually by the General Motors Corporation since 1952. The purpose of the conference is "to give the educators who attend an opportunity to observe and discuss" the company's engineering activities. Through an exchange of viewpoints it is hoped that a better understanding of mutual problems of industry and technical education can be reached among educators and company management personnel.

Approximately twenty-five professors, mostly from the higher ranks, are invited through the deans of the various schools. The conference lasts two weeks, beginning with a one-day briefing in which management and the technical staff work to give participants background information for their plant visits. During this time they observe how engineering and manufacturing problems are handled. The remainder of the first week is spent on individual field assignments in which each professor pursues a study of one aspect of the company's activities of direct interest to him. The second week is devoted to additional conferences which treat special phases of the company's activities, tours of inspection of various facilities in the Detroit area, and sessions in which the educators review their own observations with company officials.

Participants are provided meals and living accommodations during the conference period and reimbursed for travel expenses incurred in going to and from Detroit and in the pursuit of their field assignments.

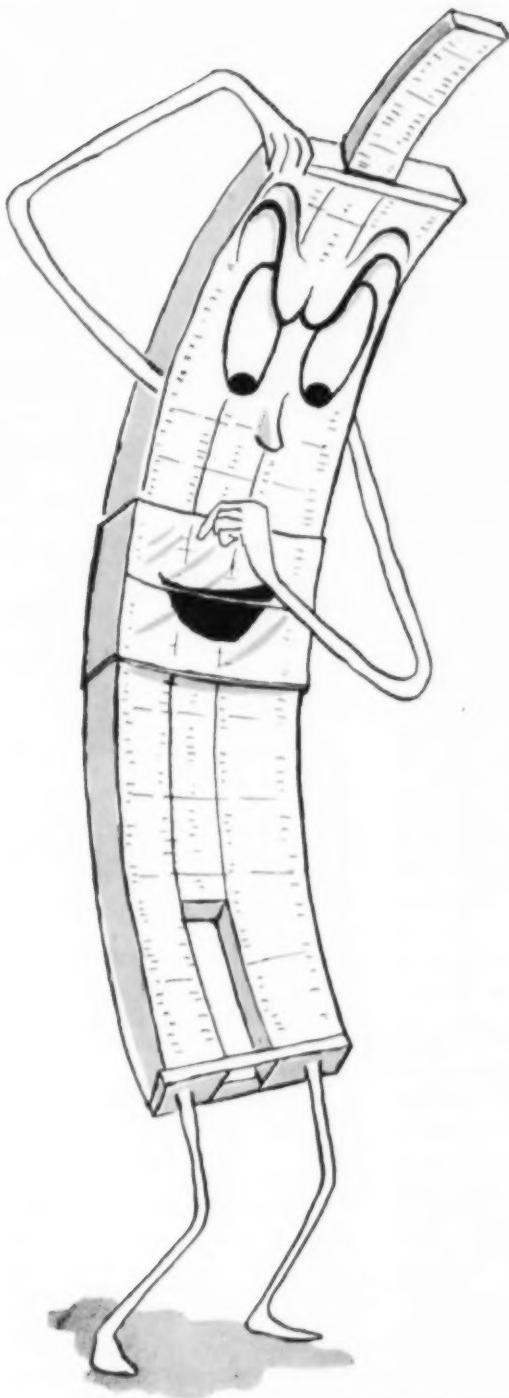
Technological advances have placed such a premium on men trained in all areas of science and technology that leaders in industry have begun to recognize their share of the responsibility for first-hand mutual experiences with the men engaged in training the students in college. Recruiters from industrial organizations should not confront the problem of convincing likely prospects of the opportunities for mechanical and metallurgical engineers in the electrical industry and for electrical engineers and mathematicians in the aircraft industry. Misconceptions should be dispelled early by advisors who, from their own experience and observations, can see that the narrow confines of departmental specialization existing in many of our schools do not project into industry.

Summer employment and summer conferences in industry for educators offer a growing channel for providing college professors, who teach and counsel students, a broad up-to-date understanding of what is to be required of his student and where the specific training a man receives in college can be best put to use. It provides opportunities for technical stimulation and financial aid for professors, assures better informed students, and aids in proper placement of graduates.

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The promises and offers begin. The better you are, the more choice you'll have. But how do you *measure* offers? How do you scale promises? On what do you base your calculations? Suddenly that slide rule you've learned to rely on becomes about as helpful as a divining rod or a discerning ouija board!

Analytical thinking at this point will help. Reducing the problem to its simplest terms: your main objective is to locate in a company whose record of engineering achievement marks it as one in which your talents will be recognized, prized and fully utilized.

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## SPECIALIZED INFORMATION CONTROL

*Continued from page twenty-nine*

ness and public administration, law, international relations, or other subjects. The field is almost unlimited, with special libraries running the gamut from accounting to zinc.

As industrial firms become more concerned with research and development, their need for precise and extensive information becomes of crucial importance. The development and marketing of a new product in the pharmaceutical field, for instance, is a highly complex problem. Mere production is not enough. The amount of capital invested in such a project requires extensive information to answer specific questions: What is the feasibility of manufacture? Is there a patent problem? Are there any cost data? Marketing data? These are all questions which must be answered before serious consideration can be focused on the actual development. They require information searching and analysis. How much the special librarian can do is dependent on his subject knowledge and ability. Often a special librarian might be teamed with an information analyst for work on a specific project. The former knows the sources, the latter the subject matter. If the two skills can be combined in the special librarian, so much the better.

### Substantial Sums Spent

Such organizations as DuPont (which has some 20 separate plant libraries), General Electric (which has 10), United States Steel, Monsanto Chemical, Eastman Kodak, General Motors, Lockheed Aircraft, Standard & Poor's, Safeway Stores, 20th Century Fox Film, the AFL-CIO, the New York Times, and the Royal Bank of Canada spend substantial sums on their special

libraries. Company libraries range in size from the one-man system to organizations with thirty or more on the staff.

Industry, however, is not alone in the field of special libraries. Government agencies such as the Department of Agriculture Library, the Air Force Research and Development Command, the Technical Information Division of the Library of Congress, the State Department Library and the scores of other specialized information centers require professionally trained librarians with strong subject backgrounds. Large university library systems also have need for subject specialists in the libraries of the law schools and medical colleges. They are needed also in the libraries of such organizations as the Institute of Transportation and Traffic Engineering at the University of California and the Applied Physics Laboratory at Johns Hopkins.

All of these organizations seek subject specialists with library training and they cannot get them. For instance, the Library School at Western Reserve University, during the period from November 1954 through September 1955, received 37 requests from business and industrial firms for professionally trained librarians with undergraduate or graduate training in the physical sciences. Only three of the library school's 60 graduates had academic background which met the requirements. The salaries offered varied widely, depending on experience and training. Generally the job offerings ranged from \$4,000 to \$7,200.

The demand for special librarians is high and is not being satisfied. It will continue to grow as fast—if not faster because it is starting from behind

—as the present pace of research and technology. The profession requires subject specialization and a professional library degree. Salaries, based on this background, will range in industry from \$4,000 to \$12,000, in government from \$4,000 to \$10,000, and in universities from \$3,500 to \$9,500.

The Placement Service of the Special Libraries Association in the Spring of 1956 reported the following salaries offered on positions listed with them:

Beginners . . . . .	\$3,900-\$4,200
Beginners with technical or scientific training . . . . .	4,000- 4,500
Assistant Librarians . . . . .	4,500- 6,000
Librarians . . . . .	5,000- 8,000
Chief Librarian, Head of Information Service, etc. . . . .	7,500-12,000

These figures are, of course, for persons newly employed and do not reflect salaries of librarians who have accumulated some service in the position.

### General Field Is Amorphous

The general field of *information specialist*, or *documentalist*, is even more amorphous than that of special librarian. There is considerable overlap between the two, primarily due to the lack of job descriptions. The field has evolved since the war and documentalists are beginning to fill a vacuum. The vacuum, of course, resulted from the failure of librarians to recognize the anachronisms of traditional library systems in the face of the scientific and technical demands for information.

Documentation has been defined as:

The group of techniques necessary for the ordered presentation, organization, and communication of recorded specialized knowledge, in order to give maximum accessibility

# The Ramo-Wooldridge Corporation

5730 Arbor Vitae Street, Los Angeles 45, California

The Ramo-Wooldridge Corporation conducts research, development, and manufacturing operations in the field of electronic systems for commercial and military applications, and in the field of guided missiles. The company is organized around a central group of scientists, engineers, and administrators who have unusual records of recent accomplishment in these fields. The principal company objective is to maintain a high level of competence in major systems development and engineering.

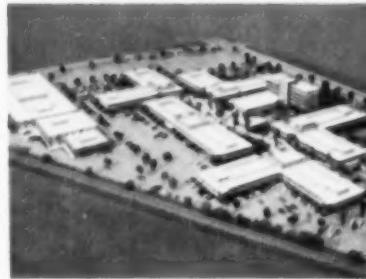
Both because of the national need and the inclination and experience of the key people, emphasis in The Ramo-Wooldridge Corporation is on the development of products having a high content of scientific and engineering newness. Prominent examples are the Intercontinental and Intermediate Range Ballistic Missiles, Air Force programs for which R-W has over-all technical direction and systems engineering responsibility. Additional examples are advanced work in the fields of modern communications, digital computing, data processing, fire control, and navigation systems for the military; and automation, operations research, and data processing projects for business and industry. All of this development work is strengthened by a supporting program of basic electronic and aeronautical research.

All features of the organization and of the operational procedures of the company are designed to be as appropriate as possible to the special needs of the professional scientist and engineer.

*The following paragraphs constitute a brief progress report on the current status of our growth and on the activities in which we are engaged.*

## Technical Personnel

Total R-W employment now numbers 2850, and of these 765 are members of the professional scientific and engineering staff, including 160 Ph.D's, 275 M.S.'s, and 330 B.S.'s or B.A.'s. A gratifyingly high percentage are men of broad experience and, occasionally, national reputation in their fields.



## Facilities

The company's Los Angeles facilities, located in the International Airport area, consist of eleven buildings totalling 600,000 square feet of modern research and development space. Three of these buildings, completed in the past three months, are the initial units of our entirely new 40-acre Research and Development Center, a model of which is shown above, which we believe will be one of the finest research and development facilities in the country. Two additional buildings of the Center are scheduled for completion later this year. Nearby is the R-W flight test facility, including hangar, shop, and laboratories, located on a 7-acre plot at International Airport.

## Financing

Adequate financing for our growth, as well as other important corporate advantages, were secured early by establishing strong ties with Thompson Products, Inc., one of the nation's most progressive large corporations. Arrangements have been made with Thompson for up to \$20,000,000 of additional financing to cover the Ramo-Wooldridge expansion requirements of the next few years.

## Manufacturing

Production has been under way in Los Angeles on some projects since the latter part of 1955. To provide for quantity pro-

duction of electronic systems, a manufacturing plant is now under construction on a 640-acre site in suburban Denver, Colorado. The initial unit of the plant, about 140,000 square feet, is expected to be completed by mid-1957.

## Fields of Activity

The technical areas available to a company specializing in advanced electronic systems and guided missiles work are numerous, and no attempt has been made to impose narrow limits on the areas considered suitable for future planning. Therefore the following list of fields simply outlines the kind of work that is currently under way, and that is expected to continue and expand during the next several years:

- Guided Missile Research and Development
- Aerodynamics and Propulsion Systems
- Communications and Navigation Systems
- Automation and Data Processing
- Digital Computers and Control Systems
- Airborne Electronic and Control Systems
- Electronic Instrumentation and Test Equipment
- Basic Electronic and Aeronautical Research

*For a copy of our booklet, "An Introduction to The Ramo-Wooldridge Corporation," or other additional information, write to:*

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The Adjutant General Department of the Army Washington 25, D. C. Attention: Special Services Division RGME-2 (T1)

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and utility to the information contained.

From this definition we can see that the problems are extremely varied. They will range from literature searching and summary reports of all that is known in a specific field to the design of machine codes for information storage and retrieval in digital computers. Consequently, the educational background takes many directions. Scientific training on at least an undergraduate level (and better on a graduate level) followed by practical laboratory or design experience appears to be the minimum for this field. Certain subject phases will certainly grow in importance in the next decade: mathematics for the development of machine codes for data processing and literature searching; electronics as computers become an integral part of information processing; operations research and systems engineering for the study of total information systems; neurophysiology as we require a better understanding of the human use of information. All of these subjects, and many others, will play a role in the information process and the documentalist must be aware of them. Such library schools as those in Columbia University, Rutgers University, and Western Reserve University are beginning to add courses which might be of assistance to the information specialist. Special summer seminars in documentation at other library schools indicate recognition of the problem. The establishment of the Center for Documentation and Communication Research at the School of Library Science at Western Reserve is a pioneer step into this unexplored frontier. The American Chemical Society through its Division of Chemical Literature is giving special courses in documentation in several cities. In general, however, library school training is not necessary at present for the documentalist.

The salaries in this field will vary widely. In government service, abstractors, bibliographers, and reference specialists range from \$4,000 to \$7,000 while technical information administrators range from \$5,000 to \$10,000. Technical information directors in industry fare better, particularly in such fields as chemistry, aeronautical engineering, and atomic energy. Here salaries run from \$8,000 upwards. Statistics in the field are almost nonexistent because its growth and recognition is so new as to preclude them.

A few employment advertisements culled from recent issues of *Chemical and Engineering News* give an idea of the variety in job offerings:

From a university library:

Literature searcher with B.S. in physics or chemistry. On-the-job training in search techniques. Salary \$5,000 - 6,000 depending on experience and qualifications.

From an eastern manufacturer:

Library and Information Service Head. New Central Research Library is looking for an unusually competent man or woman to head an Information Service Department. The position involves the organization of a technical library and all related services.

From a tobacco company:

Literature chemist. Wanted young man for searching, abstracting, translating etc. B.S. or better. Good reading knowledge of scientific German essential. Experienced or unexperienced applicants considered. Sound scientific and linguistic background essential.

From a large oil company:

Technical information section supervisor. An individual with an advanced degree in physical science or engineering field, to supervise activities of three groups engaged in (1) technical literature searches, translations, and abstracting, (2) technical library, and (3) technical files maintenance. Salary open, dependent upon experience.

Every laboratory, university department, corporation, government facility, or other research entity however defined, has an actual or potential demand for one or more information special-

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ists, both as administrators and at the journeyman level. Hercules Powder, Smith, Kline and French (with 70 people in its Science Information Department), the Technical Information Division of the Library of Congress, the Research Information Service of the John Crerar Library, the Armed Forces Technical Information Agency, are examples of some of the larger employers of information specialists.

The accompanying table shows employment figures for information personnel in the National Advisory Committee for Aeronautics, a government agency concerned with research and experimentation in aeronautics. The figures are approximately two years old, but reflect current practice.

#### Reports May Total 100,000

Another large government agency concerned with scientific information is the Technical Information Division of the Library of Congress. This division was established shortly after the Second World War to provide some solution to the problem of control and dissemination of the mass of scientific and technical reports issued in this country, currently estimated at from 50,000 to 100,000 a year. The table at the right illustrates the salary scale and qualifications for the position in the division.

The recent formation of such companies as Documentation Inc. and Herner, Meyer & Company, both in Washington, which specialize in consultant services for information systems, also indicates growth.

The third general field within the information specialization comprises the myriad of *peripheral occupations*. The photographic specialist is necessary for the development of micro-publishing and rapid copying, fields which have mushroomed since 1945. The translator finds a role in every information division. The technical report editor and the

**Employment of information personnel in the National Advisory Committee for Aeronautics.**

Position	Civil Service Grade	Number of Persons	Beginning Salary
Editor	5	6	\$3,670
"	7	8	4,525
"	9	7	5,440
"	11	2	6,390
"	13	1	8,990
Document Analyst	11	1	6,390
Librarians	5	5	3,670
"	7	6	4,525
"	9	3	5,440
"	11	3	6,390
"	13	1	8,990
Document Cataloger	5	6	3,670
"	7	3	4,525
"	9	1	5,440

**Professional personnel in Technical Information Division of the Library of Congress, 1956.**

Civil Service Grade	No. of Persons	Beginning Salary	Positions	Qualifications
GS-5	15	\$3,670	Abstracters, Bibliographers, Descriptive Catalogers, Reference Librarians, Subject Catalogers.	Grad. from Coll. or Univ. with major in physics, engrg, math., biol., or chem.
GS-7	15	4,525	Abstracters, Bibliographers, Reference Librarians, Revisers, Subject Catalogers.	Same as GS-5 plus 1 yr. prof. exper. or satisfactory subst.
GS-8	1	4,970	Supervisor of Descriptive Cataloging.	Grad. from Coll. or Univ. 2 yrs. exper. in cataloging, ability to supervise.
GS-9	25	5,440	Abstracter, Bibliographers, Reference Librarians, Subject Catalogers.	Same as GS-5 plus 2 yrs prof. exper. or satisfactory subst.
GS-11	15	6,390	Asst. Hd. Reference Sect., Abstracter - Reviewers, Bibliographer-Specialists, Sr. Subject Cataloger.	Same as GS-5 plus 3 yrs. prof. exper. or proven ability to work at this level and supervise.
GS-12	5	7,570	Hds. of Reference, Cataloging and Abstracting Sects., Hd. of Biol. Unit.	Same as GS-5 plus 5 yrs prof. exper. or proven ability to work at this level and supervise.
GS-13	2	8,990	Asst. Chief.	Grad. from Univ. and Libr. Sch. or satisfactory equivalent; 3 yrs. exper. in techn. rpt. held. Wide knowledge, supervisory and planning ability.
			Hd. Bibliography Sect.	Same as GS-5 plus 5 yrs. exper. in rpt. liter. Planning and admin. ability.
GS-14	1	10,320	Chief.	Grad. from Univ. in sciences; grad. st. in sci. or libr. sch.; exten. knowledge and exper. in sci. lit. and wk. with Govt. agencies concerned with techn. info.



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**Scientists at Smith, Klein, and French Laboratories in Philadelphia examine data retrieved and correlated in Machine Documentation Unit of their Scientific Information Department.**

nomenclature expert are required in any organization which produces scientific research papers. A new field of records management or archivist has developed in the last decade in government agencies and large corporations. This work is in the control of internal records and correspondence.

Other occupations relative to the information needs of our society are language engineering, a current project of which is the development of an air-ground language for international aviation; television engineering for the utilization of facsimile transmission between information centers; and electronic engineering and mathematics for the application of digital computers to the storage and retrieval of information. Statistics on employment and salaries in these fields of information specialization are impossible to separate from the gross figures of total scientific employment. Such occupations, with the possible exception of records management, require graduate education, largely on the doctoral level.

A number of factors are apparent in the employment situation in the specialized information field.

1. The field is just beginning to grow. Its growth depends on the continuing pressure of research and technical development for information. This pressure is likely to increase rather than decrease.

2. Due to its recently acquired respectability, job descriptions are imprecise or almost non-existent.

3. Subject knowledge is of primary importance.

4. The problems of information organization and documentation are sufficiently unique in themselves to require special training. With few exceptions, however, the library schools have not recognized this development.

5. Salary figures in the field are disparate and confused with other professions. Generally, they can be grouped in three categories:  
Beginning \$3,500 to \$6,000  
Middle . . . 5,000 to 8,000  
Upper . . . 7,000 upwards

Additional information concerning the opportunities, standards, and employment situation can be obtained from the professional associations: Special Libraries Association, 31 East 10th Street, New York 3, N. Y.; American Library Association, 50 East Huron Street, Chicago 11, Illinois; Secretary, American Documentation Institute, Library of Congress, Washington, D.C.; and the Division of Chemical Literature, American Chemical Society, 1155 16th Street, N. W., Washington 6, D. C.

**A corner of the magazine rack in DuPont Lavoisier Library shows a portion of the hundreds of current periodicals used for reference.**



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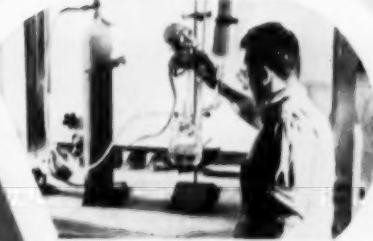
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## EXPECTATIONS AND REALITIES

Continued from page thirty-eight

of making these mistakes, the young engineer is prone to become overly-cautious, and will hesitate to give free rein to any idea in fear of being continually proved wrong in his thinking.

W. J. King, in his excellent statement of *The Unwritten Laws of Engineering* says: "Too many new men seem to think that their job is simply to do what they're told to do, along the lines laid down by the boss. Of course, there are times when it is very wise and prudent to keep your mouth shut, but as a rule it pays to express your point of view whenever you can contribute something. It frequently happens in any sort of undertaking that nobody is sure of

just how the matter ought to be handled; it's a question of selecting some kind of program with a reasonable chance of success. The first man to speak up with a definite and plausible proposal has better than an even chance of carrying the floor, provided only that the scheme is definite and plausible."\*

This is where the matter of *realism* comes into play. Although an engineer should not hesitate to express any worthwhile idea, that idea should be definite and concrete, the result of thinking and professional training. Wide experience is not necessary to produce valuable

\*King, W. J., "The Unwritten Laws of Engineering," *Mechanical Engineering*, May, 1944, Page 324.

ideas. They can come simply from a sincere attempt to answer a question or solve a problem. The only requirement is that free self-expression be tempered with realism.

To achieve this temper, an engineer must learn the value of his own work, and the part it plays compared to others' work. He must learn the value of tolerance and understanding. He must learn that he cannot create or build a product alone, but that all together, the people in his firm can and do. When his technical judgment and knowledge have increased to the point that his superiors learn to rely on it, when he is a recognized part of his organization, and contributes his work as a part of a team, knowing that he is of no value alone, and that the others are of no value without him—then the young engineer has reached the phase of his

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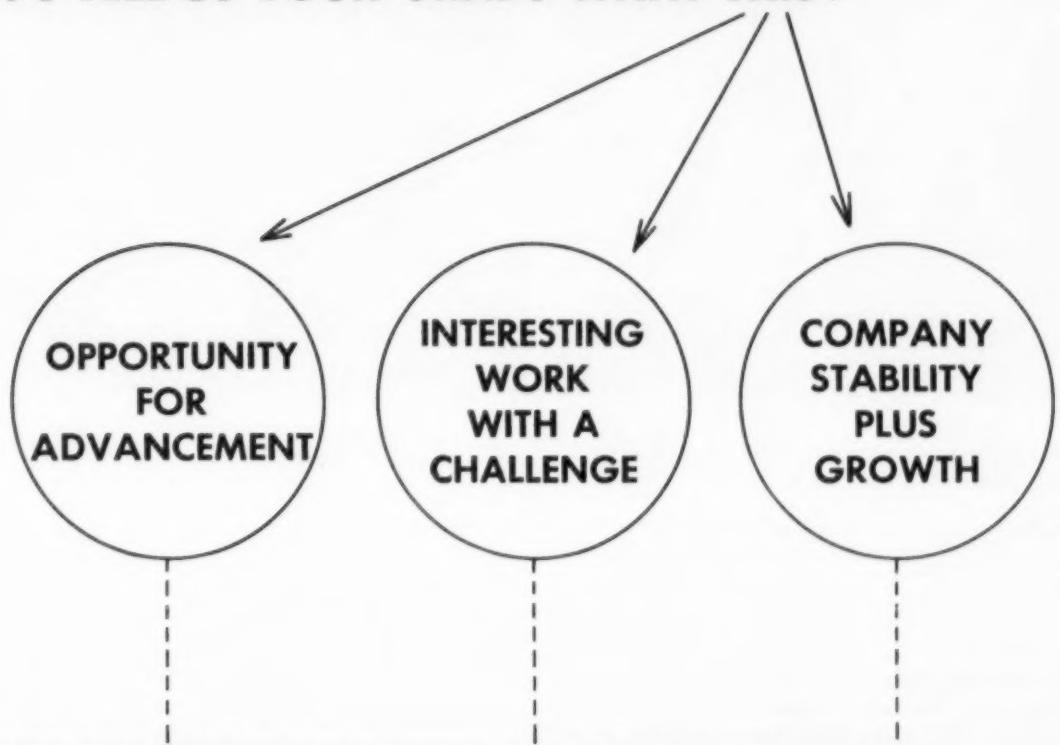
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career where he learns to temper self-expression with realism.

We stated that 30,000 new jobs are available in industry to engineers every year. That number would not be nearly as large if this were not an era of job specialization. Perhaps there is no need to emphasize this fact in our consideration of what industry expects of the young engineer. It is evident in every profession; the physician, attorney, teacher, or engineer who expects the most desirable position after graduation does not need extensive training in all fields of his profession. In most cases, today's college training involves specialization. But what does industry expect of the individual, once he accepts a specialized job?

We would like to emphasize the need for merely a degree of specialization. Many college graduates enter industry with a major in "Business Administration", "Factory Management", or "Personnel Administration", and expect administrative jobs immediately because they have "specialized" training. Most managements expect a new engineer to join their organization with a sufficient theoretical background in his field to have a working knowledge of electronics, power, mechanics, or whatever that chosen field may be.

#### Newcomer Is Not Expert

Specialization will come as a natural outgrowth of professional experience. The young engineer will not be expected to come into his first position as an expert with sharply defined specialized talents. These are gained only through experience. But on the other hand, every engineer should know the direction in which he is headed. This leads us to our final point.

We have mentioned the importance of five personal attributes in the young engineer which industry expects him to

possess or acquire early in his professional career. However, none of these characteristics will be of ultimate value unless an

#### COMING REGIONAL MEETINGS

The *University Counseling and Placement Association (Canada)* will hold its annual meeting June 10-12 at the University of Ottawa, Ottawa, Ontario.

The *Midwest College Placement Association* will meet at Detroit, Mich. on September 9-11.

The annual meeting of the *Middle Atlantic Placement Officers Association* will be held at the Pocono Manor Inn, Pocono Manor, Pa. September 25-27.

The *Eastern College Personnel Officers* will meet October 6-9 at the Poland Spring House in Poland Spring, Maine.

Under the chairmanship of Howard Lumsden, the *Southern College Placement Officers Association* will hold its annual meeting at the Jung Hotel in New Orleans, La., October 9-12.

The *Southwest Placement Association* will meet in Albuquerque, N.M., on October 16-18.

employee has sufficient vision to look ahead to a final objective.

Raymond C. Miles, in an article for young engineers printed in *Proceedings of the IRE*, says: "Continual recognition of the goal is difficult, the tendency being to lose oneself in the day-to-day details of a job. It is worthwhile to stop occasionally in order to re-examine the course of one's work to date and to assess its probable future direction. In this way, it may frequently be found that difficulties which seem insurmountable can be overcome by virtue of a new approach which will serve the

ultimate purpose equally well."\*

Young engineers should not overlook the importance of self-analysis, and should avoid becoming so involved in job details that they lose sight of their ultimate objective. Industry does not expect blind perseverance or dogged determination in the new employee. But persistence, and sight of the ultimate goal early in his professional career, is highly important to any potentially successful young engineer.

This advice, written by W. J. King in 1944, is still valuable for today's young engineer: "It is a significant fact that in the overwhelming majority of cases, the decisive differences in the abilities of engineers are relatively small. In spite of the occasional incidence of a genius or a nitwit, the great majority of personnel in any industry and the backbone of the large organizations are individuals who vary only slightly from the norm."

#### Character Ranks High

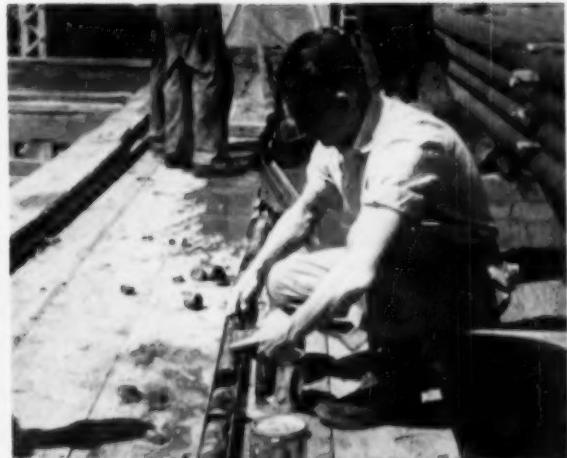
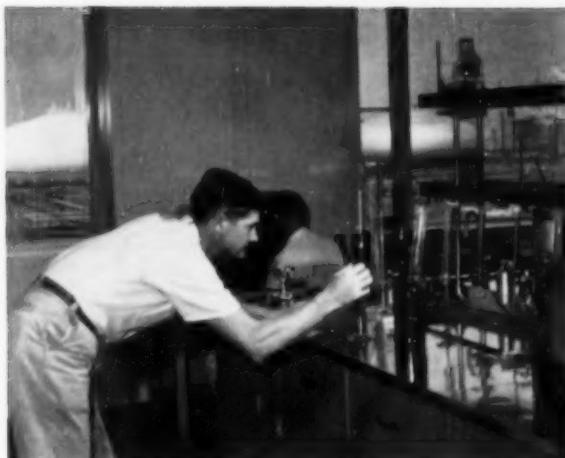
"In general, when executives look over an organization to select a man for a better job, those who are passed up have very few actual shortcomings, but the man who is chosen had the least. Likewise, many top executives are distinguished not so much by marked genius as by relative freedom from defects of character. There is nowhere near enough genius to go around.

"This should be particularly heartening to the younger men who view the leaders of industry with awe and wonder upon what meat they feed. Nine out of ten of you have 'what it takes' as regards native endowments. The problem is to make the most of what you have."\*\*

That, in essence, is what industry expects of the young engineer — to make the most of what he has.

\*Miles, Raymond C., "Beginning a Career in Engineering," *Proceedings of the IRE*, December, 1949, Page 1460.

\*\*King, W. J., "The Unwritten Laws of Engineering," *Mechanical Engineering*, July, 1944, Page 162.



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PLACEMENT

# news

RECRUITMENT

*Institution of new services, changes of staff personnel in placement offices, and reports of national occupational trends are leading items in current releases from industry and the colleges.*

■ Smith College students earned more than \$370,000 in summer jobs in 1956, according to figures compiled by the Vocational Office.

"It has been growing increasingly clear that not only are opportunities for women in such work improving, but also attitudes of the students are changing," Miss Alice Davis, Vocational Director, said. "More and more Smith students are deliberately using their summers with an eye to preparing for the future."

Before World War II, Miss Davis said, college women majoring in science rarely had the opportunity, even if they had the inclination, to enter the industrial and scientific worlds in any appreciable numbers. Studying physics, chemistry, or mathematics more often led to teaching positions or graduate work. Last summer, by contrast, Smith students majoring in these fields worked for, among others, Woods Hole Oceanographic Institute, Bendix Aviation Co., Bell Telephone Laboratories and Mallinckrodt Chemical Co. They were assigned to research projects for which their training was prerequisite and were paid correspondingly high salaries—some receiving as much as \$1,000 for the summer.

Nearly 92 per cent of the students reported on their summer activities to the Vocational Office and of these only 5.2 per cent were not engaged in studying, working, or traveling for at least part of the summer.

■ William K. Phipps, who has been serving as Director of Placement at Syracuse University for the past three and one-half years, has accepted a newly-created position with the Eastern Division of Moore Business Forms, Niagara Falls, New York.

As Manager of Sales Recruitment and Personnel, Mr. Phipps will be concerned with the recruitment, selection and training of sales personnel for the Eastern Division. He will also serve in a liaison capacity between the Administrative Offices in Niagara Falls and the eight regional headquarters offices of the Division located in the Midwestern, Middle Atlantic, and New England states.

Frederick R. Garrity, who has been associated with the Production Management Department at Syracuse University during the past half-year, will succeed Mr. Phipps, as Director

of Placement. Mr. Garrity will bring ten years of industrial experience to his new assignment. Between 1951 and 1956 he was employed by the Package Machinery Company in East Longmeadow, Massachusetts, in the production field. Prior to this time he spent over four years with the Leominster Tool Company in Leominster, Massachusetts.

■ National job trends were reflected in a report released by Barnard College which stated that 90 per cent of the requests for scientists, teachers, and secretaries received by the College's Placement Office during the past academic year went unfilled because of the scarcity of qualified candidates.

According to Miss Ruth Houghton, Director of Placement at the women's college, job opportunities for graduating seniors and alumnae of the College increased by 15 per cent during 1955-56. Calls for scientists alone, she stated, were eight per cent higher while actual placements in the field decreased by 19 per cent.

Seniors who graduated from Barnard in June, she reported, found job opportunities good with salaries ranging from \$5400 for science majors to \$2500 for

those entering such overcrowded fields as publishing, radio, or television.

Of the 248 June graduates reporting to the Placement Office, 146 or 56 per cent were employed and 81 or 32 per cent were continuing their studies in this country or abroad. Travel for pleasure or with servicemen husbands, homemaking, and "looking for the right job" accounted for the remaining 12 per cent of the reporting graduates.

■ William G. Thaler, director of personnel for the American Cancer Society, has been named director of personnel at New York University.

Mr. Thaler will head a newly organized division of the University's business operation concerned with the varied aspects of personnel matters. Members of the division are moving into new quarters on the first floor of NYU's recently purchased building at 20-22 Waverly Place.

A 1948 graduate of Hofstra College, Mr. Thaler received the master of arts degree from Columbia University in 1950. He was a consultant for the National Foremen's Institute from 1952 to 1954 and has served as personnel manager for John Wanamaker in Westchester.

■ Walter L. Kelly, who has been placement director at the City College of New York since 1947, has been named director of placement services.

A 1939 graduate of Fordham University, Mr. Kelly received his master of arts from NYU in 1949. Before going to CCNY he did personnel work for the Gulf Oil Corporation, the Maritime Commission, and the Adjutant General's Office.

■ Procedures to alleviate the nation's "worrisome shortage of scientific personnel" by attacking the problem at all educational levels from elementary school through college were proposed at

the Southwide Chemical Conference at Memphis.

Based on a survey of 118 New Mexico schools, which indicated a "serious" decline of science enrollments from 1947-48 levels, one speaker made ten recommendations for increasing the number of American scientists. Dr. Ernest L. Martin, associate professor of chemistry at the University of New Mexico, in a paper prepared jointly with Dr. J. L. Riebsomer, chairman of the university's department of chemistry, suggested such steps as these: offering a "Master of Science degree in the Teaching of Science," rather than requiring a teacher's advanced training to be in the field of education; reducing the teaching load of science teachers; and encouraging scientists and engineers to assist, on invitation, with classroom work.

A second speaker, Dr. Gerald A. Thomas, associate professor of chemistry at the University of Florida, declared that some blame for the "critical shortage" rests with college and university administrators and faculties. He said:

"We are the ones who have contributed greatly to the present situation and we, as much as any group, are creating the same critical shortage for the future by actually driving potential scientists out of science through a misplaced emphasis on one phase (research) of our academic program."

■ Establishment of a University-wide Placement Bureau and the appointment of its director and staff was announced by Dr. Edward H. Litchfield, chancellor of the University of Pittsburgh.

Dr. Paul Sherwood was named director of the Placement Bureau. He will join the staff of Dr. Charles Peake, assistant chancellor for student affairs.

Dr. Peake said this new administrative unit in the student affairs area will provide a wide

range of employment information and assistance to graduating men and women and alumni from all schools with the exception of Education, which will maintain its own placement office and the highly specialized areas of Medicine, Dentistry, Law, and Nursing.

The Placement Bureau also will handle all part-time student employment, according to Dr. Peake.

■ An all-day conference on "Careers in the Mathematical Sciences" was held by New York University's Institute of Mathematical Sciences. Participating were high school mathematics chairmen and vocational guidance counselors from New York, New Jersey, and Connecticut.

The conference was prompted by the shortage of mathematicians to fill positions in industry, government, and research. According to Dr. Hanan Rubin, assistant professor of mathematics and chairman of the event, the purpose was to make qualified high school students "aware of the career possibilities in the mathematical sciences through their advisers and mathematics teachers."

■ Among Michigan State University's 1956 graduates holding bachelor's degrees, engineers commanded the largest average starting salaries — \$4,535 to \$5,355 — according to Jack Breslin, director of M.S.U.'s Placement Bureau.

From 927 graduates who responded to a Placement Bureau survey, the following range of starting salaries, listed by colleges from which the degrees were received, were reported:

Agriculture, \$3,670 to \$6,500; Business and Public Service, \$3,760 to \$4,849; Engineering, \$4,535 to \$5,355; Home Economics, \$3,697; Science and Arts, \$3,633 to \$5,112; Veterinary Medicine (Medical Technology),

**Question 5a:**  
**What in the last**  
**analysis made you decide to**  
**work at Hughes?**



**HUGHES**

RESEARCH AND DEVELOPMENT LABORATORIES  
SCIENTIFIC STAFF RELATIONS

*Hughes Aircraft Company, Culver City, California*

We wanted to find out why we have been so successful in attracting such high-calibre engineers to the Hughes Research and Development Laboratories. So we had an independent research organization ask a 15% random sample of our 2,700 engineers and scientists just what attracted them to Hughes.

Of all the things they look for in a job—of all the things they like about Hughes—these four headed the list:

**1. EXCELLENT SALARY.** Talk to the engineers in our Research and Development Laboratories, and 55.8% of them will tell you that one of the reasons they came to Hughes was the favorable salary structure. You can choose your electronics career in either the military or commercial fields. *Contact Hughes today.*

**2. INTERESTING WORK**—with opportunity for advancement. 48.7% of our engineers were attracted, by such rewarding projects as guided missiles, armament control systems, ground radar, microwave tubes and antennas, digital computers, miniaturized communications systems. Sound interesting? *Contact Hughes today.*

**3. EXCELLENT WORKING CONDITIONS**—coupled with scientific atmosphere, high calibre of associates, and prestige of the firm—is one reason why 34% of our engineers came here. They like the exceptional facilities, unusual freedom, the small project groups headed by top scientists. Is this what you seek? *Contact Hughes today.*

**4. PLEASANT CLIMATE.** We're pretty lucky at Hughes to work in the wonderful, sunny climate of Southern California—and that's one of the advantages that attracted 28.2% of our engineers... Here carefree living is the order of the day... and beaches, mountains and deserts are practically next door. Envious? *Contact Hughes today.*

A resume of your education and experience will bring by return mail a copy of our interesting new booklet, illustrating and describing the many and varied activities at Hughes.

\$4,084; Education, \$3,980 to \$4,225; and Communication Arts, \$3,687 to \$4,044.

The survey also revealed that 78 per cent of those who responded are employed full time, the majority in jobs related directly or indirectly to their major fields of study. Michigan employers claimed 61 per cent of the men and 79 per cent of the women graduates.

While they were at Michigan State, 81 per cent of the graduates earned some portion of their educational expenses, Breslin reported, and 26 per cent earned more than half of their expenses.

Thirty-seven per cent are married and 14 per cent have children. Approximately 20 per cent have their military service behind them.

The survey showed that the graduates took advantage of interviews set up by the Placement Bureau while they were students. More than half took five interviews or less, Breslin said, adding that nearly 90 per cent of those now employed reported that their jobs (or training programs) were properly outlined during the employment interview.

■ Robert B. Mason, has been appointed Supervisor of Employment of the West Penn Power Co. reporting to R. W. Murtaugh, Manager of Personnel Services.

Mr. Mason will be concerned with the objectives, policies, standards, and resources for recruitment and placement of employees, providing necessary aid and service to all departments of the Company. He will be directly responsible for recruitment and placement service in connection with new college recruits, employees of the general office, and in other areas as needed. He joined the Personnel Department of West Penn as personnel assistant March 1,

1952, was promoted to wage analyst March 1, 1953, and to supervisor of job training January 1, 1955.

■ More people fail in their jobs because they do not know the requirements of being a good employee than because of inadequate skills in their work, Peter P. Rempel said in a talk to college counseling administrators attending a three-day conference at the State University of Iowa.

Speaking at the Iowa Center for Continuation Study, Rempel said that the typical college senior does not know enough about job requirements in various fields of work. Rempel is senior counselor in the SUI counseling service.

Students are most concerned about finding work which is interesting and which offers an opportunity for advancement, Rempel explained, pointing out that the latter concern reflects a "worship" of success. This striving for success may produce an ethics not especially healthy from a personal or community point of view, he said.

"If the guiding principle of the students is 'What's in it for me?' or 'What can I get out of it?' he is not in college primarily to obtain an education, or to acquire the ability to learn or to think, but rather to acquire a kit of tools which will enable him at some future date to 'crack the bank of opportunity,'" Rempel stated.

Many graduating seniors are unaware that the number of opportunities for advancement is limited, Rempel pointed out. "We know that the degree of equality of opportunity open to persons with identical qualifications contains a large element of luck at best, with the hope for advancement fulfilled for only a minority of the work force," he said. "The remainder, whether because of lack of vacancies or

personal inadequacies, remain at about the level at which they started."

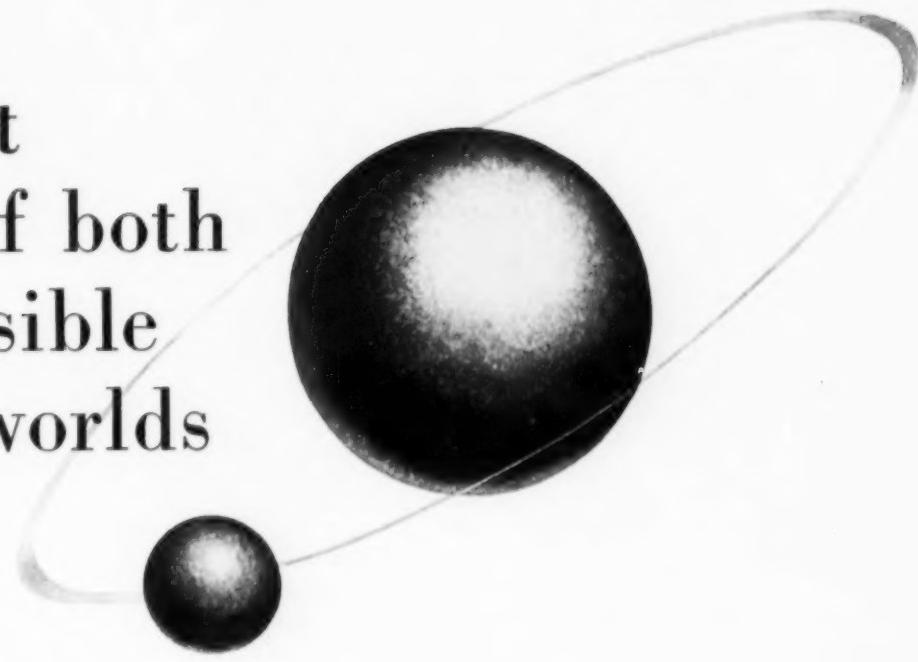
■ Detroit is the meeting place for the American Personnel and Guidance Association's 1957 convention to be held at the Hotel Statler, April 15-18.

Theme of the convention is "The Individual's Role and Industrial Change." A highlight of the meetings will be a luncheon address by Walter Reuther, President of the United Automobile Workers. In keeping with the industrial setting, a featured panel will discuss how automation affects the individual. Industrial leaders are scheduled during the four-day convention, and guidance and personnel workers attending this convention will get an opportunity to see for themselves what guidance resources industry has to offer and how industrial personnel programs function.

■ The Alumnae Advisory Center has formed a subsidiary, the Alumnae Placement Agency, Inc., according to an announcement by Mrs. William L. Duffy, chairman of the board of directors of the Center.

The Alumnae Advisory Center, a New York State Corporation of 23 colleges, brings together college-trained women and New York employers seeking college graduates. It advises college women who are looking for jobs in New York, develops opportunities that will offer rewarding use of their talents and training, conducts studies on the placement of alumnae, issues bulletins to member colleges, publishes and distributes vocational materials, and holds forums for the exchange of information and opinion among colleges, alumnae, and employers. The Center is supported by dues from its member colleges, and tax-exempt contributions from individuals, business firms, and foundations.

# Best of both possible worlds



OUR young engineers tell us that one of the best things about working with General Motors is this—

Here at GM you live in a big world of vast resources, great facilities, important happenings—yet you also live in a small world of close friendships and harmonious relationships.

For GM—the world's most successful industrial corporation—is also completely decentralized into 34 manufacturing divisions, 126 plants in 68 U.S. cities.

Within these divisions and plants, you find hundreds of small, hard-hitting technical task forces consisting of engineers with widely varying degrees of experience.

It follows that our young engineers have the splendid chance to learn from some of America's best technological minds. The chance to win recognition for achievements. The chance to grow personally and professionally.

Beyond that, they have the opportunity to follow their natural bent in an organization that manufactures

literally dozens of products, ranging from modern aircraft engines to fractional horsepower motors—from cars and trucks to tanks and off-the-highway equipment.

Think you're acquainted with some young men who have what it takes to engineer rewarding careers with GM—as so many thousands have done? You'd be doing both them and us a good turn by bringing us together for some further discussion.

## GM positions now available in these fields:

MECHANICAL ENGINEERING  
ELECTRICAL ENGINEERING  
INDUSTRIAL ENGINEERING  
METALLURGICAL ENGINEERING  
AERONAUTICAL ENGINEERING  
CHEMICAL ENGINEERING  
CERAMIC ENGINEERING  
CIVIL ENGINEERING

## GENERAL MOTORS CORPORATION

Personnel Staff, Detroit 2, Michigan

The Alumnae Placement Agency, a fee-charging employment office for all college women, has been established to help alumnae find the right job in New York City. The Agency is an expansion of the Center's program to benefit alumnae and New York employers. Opening the doors to all college women will enable employers to draw on a much wider selection of applicants and is expected to attract a greater number of jobs for alumnae. Alice Gore King, executive director of the Center, is also the executive officer of the Agency. The offices of both organizations are at 541 Madison Avenue, New York 22.

■ Who says the creative mind slows down after the age of 40? That theory widely held in recent years is largely disproved, in the field of science at least, by a survey published in *Chemical and Engineering News*.

The American Chemical Society weekly reports more and more chemical companies now recognize that their over-40 scientists may still be highly productive. Many concerns, in fact, have set up "senior scientist" programs to let researchers of proven ability continue their laboratory careers instead of turning to administrative work.

Through these programs, creative scientists in the 40-plus bracket can obtain high salaries and greater prestige without deserting their test tubes for the desk jobs that once offered the only real prospect of "success."

"Some years ago," the report points out, "the theory was rampant that, after the age of about 35 or 40, the average researcher began losing his creative spark. The chance of his making a major discovery was believed to drop off sharply. Hence, there really wasn't much point to encouraging a man of 45 to 50 to do research."

Recent experience has shown management, the report says, that age itself is no criterion for judging an individual's capacity for research—that "a man with a good scientific mind who advances in years does not necessarily become a poor researcher—or, for that matter, a good administrator."

■ Industry has again widened the scope of its hunt for engineering graduates. Figures released recently from the Carnegie Institute of Technology Bureau of Placements indicates a marked trend on the part of industry into the field of recruiting Ph.D. candidates, apart from M.S. and B.S.

This drive for engineers in the Ph.D. field is accompanied by a significant rise in the number of students entering the graduate field of study. With the consistent shortage of engineering students and the increasing number of students entering graduate studies the companies have not only been forced to recruit harder and longer but at a new and higher level.

Last year, at Carnegie Tech, only 40 companies sent interviewers to the campus to discuss career opportunities with graduate students. This year more than 70 major companies—in all industrial classifications—have arranged for student-company representative interviews. The interviews with the graduate students have already begun and will continue through the year. Since the type of interviewer for graduate students is considerably different than for B.S. students the companies will, this year, make two trips to the campus.

Due to the advanced education of the Ph.D. candidate and his desire to specialize in a particular phase of his field the complexion of the interviews and the type of recruiter is of marked difference from the B.S. inter-

viewer. The companies recruiting for Ph.D. candidates are sending technical men—such as research directors or heads of research projects rather than the usual personnel man from the administrative departments.

■ Career opportunities and advantages for young people in food retailing are described in a new booklet published by the National Association of Retail Grocers.

Entitled "Food Retailing Career Opportunities," it is believed by the Association, to be the first book to "spell out" opportunities which exist in food retailing. It traces the growth of the industry, discusses food retailing's "unlimited future," and describes, as well as graphically charts, the types of positions available for beginners and those with varying degrees of experience and training.

The booklet further points out that today's modern food stores require "experts" in many lines, including personnel, marketing, advertising, engineering, cost accounting, and merchandising. "Market changes must be watched carefully, price ratios to insure profit of the store are important, and advancement planning of promotion and advertising is a basic necessity for successful food retailing," it reports.

According to the booklet, highly skilled personnel are required for meat and produce departments, and store management opportunities have increased with the expansion of independent food retailers. There is a constant search for assistant store managers who can be trained for full store management responsibility.

Describing the types and kinds of stores—more than 385,000—which handle a volume of \$45 billion in annual sales and employ nearly 2,000,000 people,



B. Ellis (center), head of the Propulsion Department, discusses methods of accurate thrust termination for a ballistic rocket with Dr. Howard M. Kindsvater (left), propulsion staff engineer, and André P. Bignon, propulsion research specialist.

## PROPULSION ACCURACY—*a major missile problem*

Controlling power action is but one of the major problems facing propulsion engineers and scientists. Important advances in this and related areas of propulsion are necessary to missile systems now in development.

Because of the growing complexity of problems now being approached, Propulsion Engineers find their field offers virtually limitless scope for accomplishment. The ability to perform frontier work is essential.

Engineers and scientists possessing a high order of ability and experience in propulsion and related fields will be interested in new positions now at Lockheed Missile Systems Division's Sunnyvale and Van Nuys Engineering Centers. Inquiries are invited.

*Lockheed*

### MISSILE SYSTEMS DIVISION

*research and engineering staff*

LOCKHEED AIRCRAFT CORPORATION

VAN NUYS • PALO ALTO • SUNNYVALE

CALIFORNIA

the career booklet says that food retailing's rapid advances and steady operation year in and year out afford many career advantages for young men and women who want a promising future.

Copies of "Food Retailing Career Opportunities" are available to everyone in the food industry and to high schools, colleges, universities, libraries, placement and vocational counselors, and anyone interested in food distribution. Write to National Association of Retail Grocers, 360 N. Michigan Avenue, Chicago 1, Illinois.

■ Industry may have to assume the responsibility for specialized training, Dr. Milton Hahn, of the University of California at Los Angeles, told 50 high school and college personnel administrators at a career conference in Los Angeles.

Dr. Hahn pointed out that with the great increase of specialization more and more educational institutions will be unable

to keep pace with the increasing growth of specialization. The colleges, he said, will be forced to give generalized education and business and industry will have to train the specialists that they need.

Dr. Harold Reed of the office of the Los Angeles County superintendent of schools stated that if career guidance services are curtailed the waste of human energy could eat away at the existing abundance in the U.S. He added that to provide sound career advice we must know the labor market and how people work in it. He said that population trends are largely responsible for the current tight labor market.

Dr. John H. Cornehlsen, career consultant, quoted the Grant Study of Harvard University Alumni which showed that the average Harvard alumnus in the mid 30's took ten years to settle down in his permanent career. Proper guidance would make it possible to save this wasted time, he said.

Devereux C. Josephs, chairman of the board of the New York Life Insurance Company, said that we can expect machines to become increasingly more productive and that the country is headed for a shorter work week and longer vacations.

He predicted that the average American worker in 1966 should get 30 per cent more real goods and services than can be bought with an hour's labor today. He also sees the average worker with shorter hours getting about 25% more annual income. Mr. Josephs appeared on a panel with Asa Call, president of Pacific Mutual Life Insurance Company, and Powell Smith, executive vice president of Occidental Life Insurance Company.

Dr. Floyd Ruch of the University of Southern California outlined the tests and interviewing profile which had been developed by research on a group of security salesmen.

The program was sponsored by New York Life at its new divisional office building at 2801 West 6th Street, Los Angeles.

## VOCATIONAL CHAIRMEN

*Continued from page thirty-two*

in effect for only a year and a half, we feel that there already are tangible results.

There is a decided increase over other years in the number of underclassmen who have visited the placement office to discuss their course work and to ask advice about what courses to take to prepare themselves for certain industrial specialties.

Prior to the time of our vocational chairman program we would be lucky indeed if we had as many as 20 registrants in our office before the general fall meeting explaining the services available at the placement office.

This past year we had some 200 students take out registration blanks in the placement office before the fall semester was two weeks old and prior to the general fall placement service meeting.

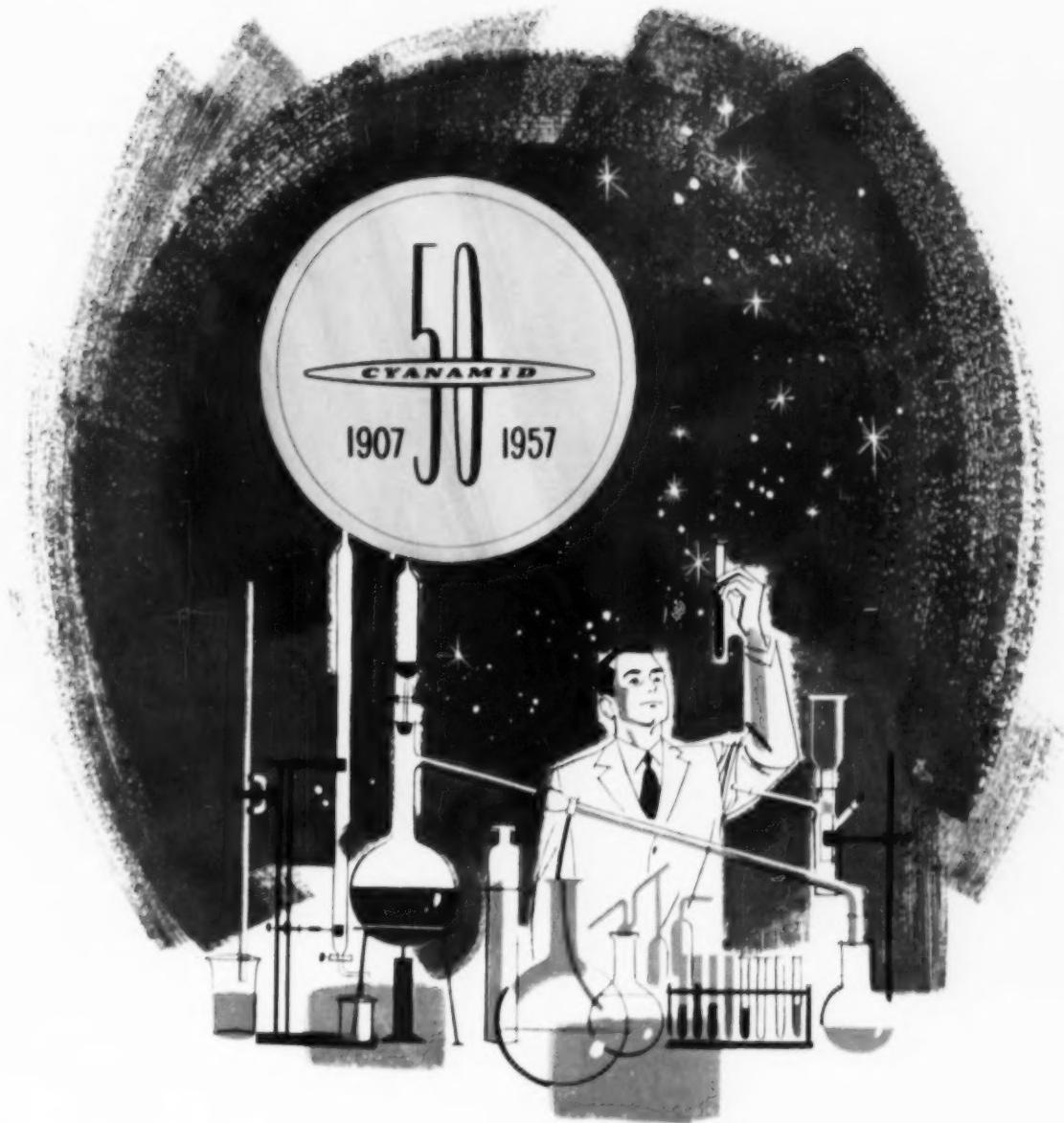
Reports from individual vocational chairmen indicate their fellow fraternity members spend a great deal of time browsing through career literature and text books in the fraternity's "career corner."

Industrial representatives have reacted most favorably to this new vocational chairman program and several have corresponded directly with vocational

chairmen to express their desire to cooperate in sending any literature that might be helpful to the chairmen.

Because of the success of our vocational chairman program among the fraternities we plan to expand the program to include our non-fraternity student housing units. Since these large, non-fraternity dormitories are less cohesive and of a more heterogeneous nature, we expect to encounter a more difficult organizational problem than that of the smaller, homogeneous fraternity group.

But after contacting the student officers of non-fraternity dormitories this past semester, we find that they are already considering ways in which they can cooperate with the placement service to increase the "career consciousness" of all underclassmen on campus.



## A TIME TO LOOK FORWARD

The arrival at a fiftieth milestone is, we believe, a time for looking forward to new horizons rather than for dwelling on past accomplishments.

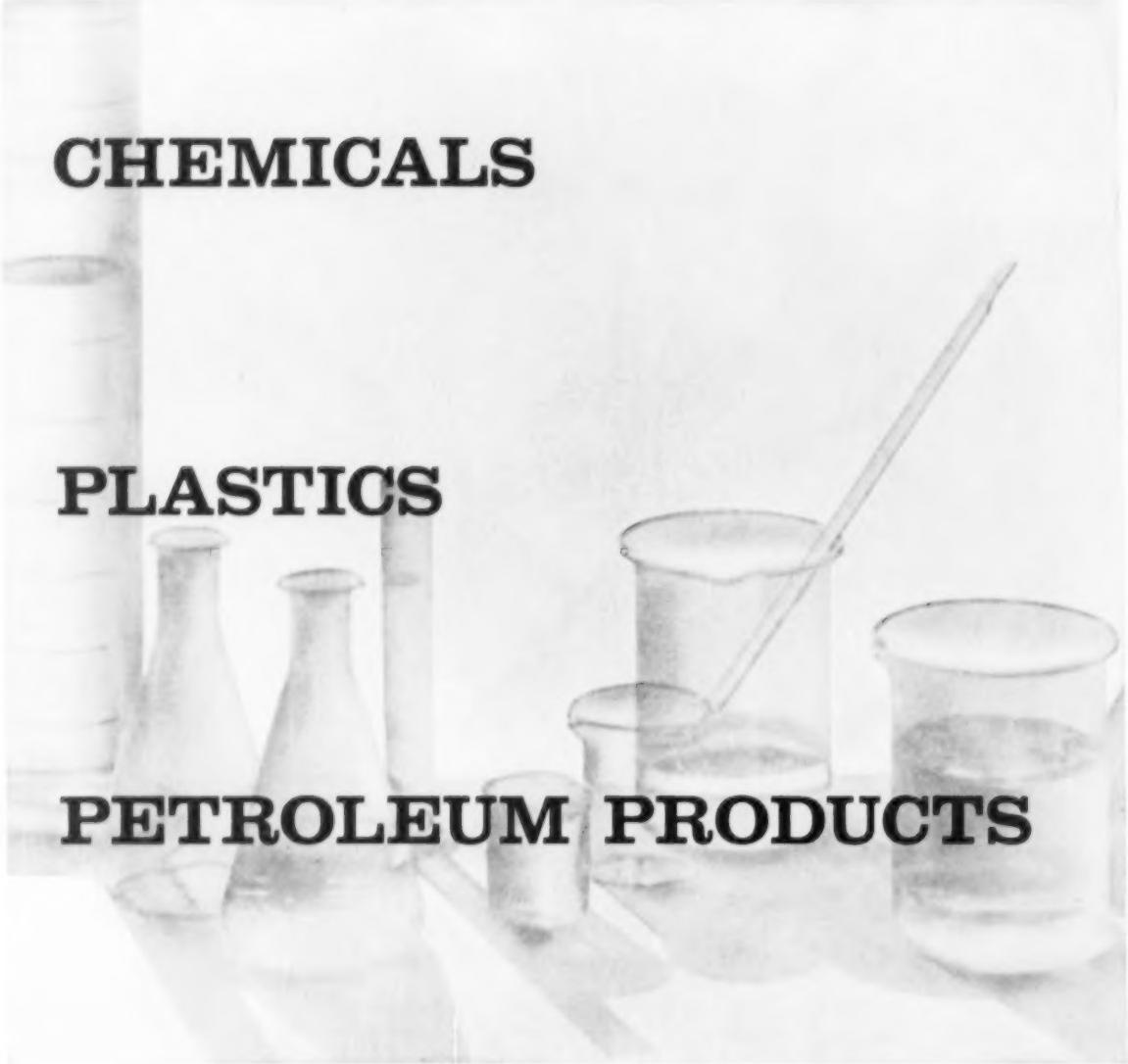
So we at Cyanamid are looking to the future, confident that the Company's growth to a position of leadership in the chemical industry provides a firm foundation on which to go forward in the years to come.

To meet the new challenges that lie ahead—in

research, product development, marketing and many other fields—requires imagination and enterprise. For people endowed with these talents we rely heavily on College Placement Officers, whose judgment and perception have proved to be one of our most valuable recruiting assets.

AMERICAN CYANAMID COMPANY, College Relations Office  
30 Rockefeller Plaza, New York 20, N.Y.





**CHEMICALS**

**PLASTICS**

**PETROLEUM PRODUCTS**

Mixing creative research with production know-how, Monsanto tailors myriads of old and new products to meet the needs of people.

MONSANTO CHEMICAL COMPANY

Sales Offices, Plants, Laboratories  
in every major industrial area



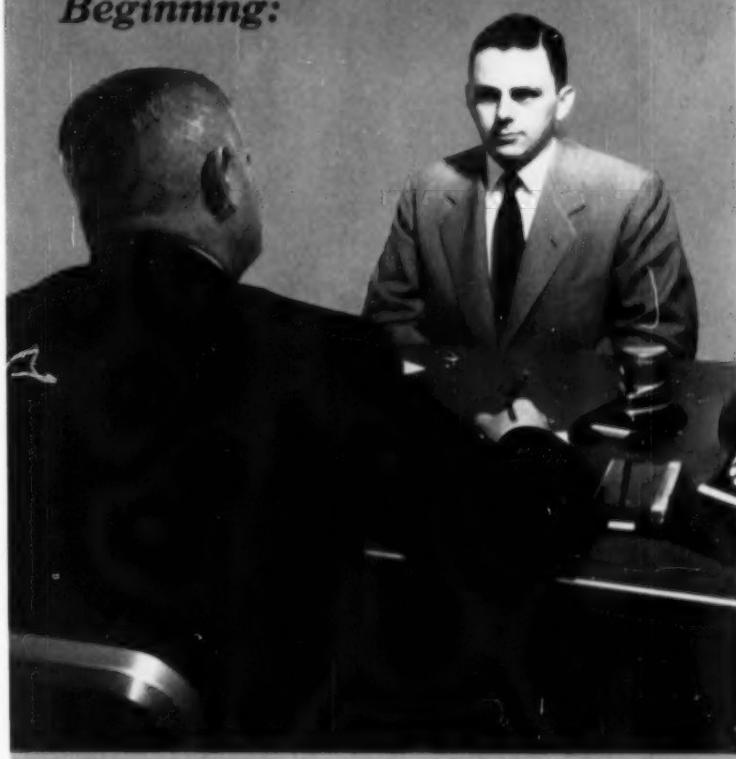
WHERE CREATIVE CHEMISTRY WORKS WONDERS FOR YOU

THE records of leading universities indicate that each year hundreds of business organizations undertake for the first time a program of hiring on the campus. Each organization is faced with the question: On what experience, on what advice and instruction can they lean in embarking on a program that is complex, technical, expensive, and critical to the companies' future progress and success? Does the *modus operandi* for a program of college recruitment spring full-blown into the ken of the official newly charged with the duty of setting it up? Hardly. To what sources can he appeal? If he is aware of the material identified in the bibliography of this article and if he can borrow the manual of a firm like his which has an established and successful program, he is unusually well off. Many personnel men, given the responsibility of setting up a college recruitment program, get their principal professional advice from the counsel of colleagues with similar responsibilities and, perhaps, from a handy and co-operative placement director. Some learn of and join their regional placement associations. Too often they try to "play it by ear." At best, preparation for such an assignment is difficult, time consuming, and, without guideposts of advice, confusing. The average personnel man, confronted with the responsibility of establishing a recruitment program for graduates, must almost inevitably look forward to a costly trial and error approach to an activity where mistakes are exceedingly expensive and the time to try and retry techniques is often not available.

It is easy to document the importance of effective personnel to corporate success. A thousand industrial officials in a thousand ways have said that their company is only as good as the men who comprise it.

If "70% of the jobs paying over \$5000.00 a year are held by college graduates,"<sup>1</sup> it is a safe statement that it is essentially the collegians in industry who count. "Particularly it is the trainees on whom the

## Beginning:



# A Model Program for Corporate Recruitment

By Wallace Jamie

*Director of Public Relations, The Carnation Company*

As a project of the Western College Placement Association, the Journal begins with this issue the serialized presentation of an unusual study of the broad field of recruitment by a recognized authority. After its appearance in the Journal it will be published as a book under W.C.P.A. sponsorship.

ILLUSTRATIONS BY COURTESY OF THE CARNATION MAGAZINE

organization lavishes from six to twenty-four months of expensive training whose performance fore-shadows profit or loss for the future."<sup>2</sup>

Therefore because the trainees will be the corporation a couple of decades hence, and because in the process of their growth these cadets cost American business millions in direct expense and indirectly much more than that, the recruitment plan looms as a vital aspect of business administration.

Wallace Jamie is past president of the National Vocational Guidance Association, Southern California chapter. In 1954 he received the award of the N.V.G.A. for his contribution to the improvement of "communications in industry." He is past vice-president of the College Placement Publications Council, a past member of the Editorial and Administrative Board of the Personnel and Guidance Journal, a frequent contributor to professional and national publications, one of the founder-directors of the Western College Placement Association, and a Naval Lieutenant Commander Reservist.

General Personnel Director of Carnation for a period of nine years, he recently received the appointment of Director of Public Relations for the organization.

A trainee who leaves his firm after two years of instruction—whether his program was an on-the-job, learning-by-doing experience or a more formalized class-room-type project has probably cost the company between \$8,000 and \$20,000. These amounts would include his salary, an apportioned part of the salary of those accountable for his instruction, the overhead cost of his office, his travel and other expenses, the expense of his recruitment, and several other smaller but not insignificant items of cost. Even

if the student's training was "on-the-job," he was moved about too frequently to become very productive in any single spot. A recruiter who nominates a candidate who is selected is, in a sense, recommending that the company gamble \$10,000 that he is guessing right. Thus it becomes highly important that such a commitment be safeguarded by every consistent caution, that the most proved techniques be employed, that a maximum of possible candidates be considered, and that the eliminations be as far as possible predicated on tried and "scientific" procedures.

One firm roughly estimates its trainee cost as follows:

The second and by far the more important facet of the cost consideration (the first was recruitment cost) is related to the cost of training and of turnover . . .

The Company estimates the cost of recruitment and training for the first year at \$5000.00. This figure is arrived at in this way. The average salary is \$300.00 a month or \$3600.00. The cost of movement of the trainee and his family may average \$500.00. Time of trainers and supervisors might easily reach \$1,500.00. The recruitment cost per man counting the time and travel of the General Personnel Department recruiters and the others involved including psychomotrists, psychologists, division representatives who undertake second interviews may easily reach \$400.00. This totals \$600.00. The amount of productivity of the trainee varies greatly from a very limited record of accomplishment in some of the sales training programs to a considerable usefulness for the production students.

If it is assumed that the net value to the company averages \$1000, then we conclude that the trainee if he leaves at the end of the year has cost the company \$5000. With the training program varying in length from one to two years, the average student spends 18 months in training.

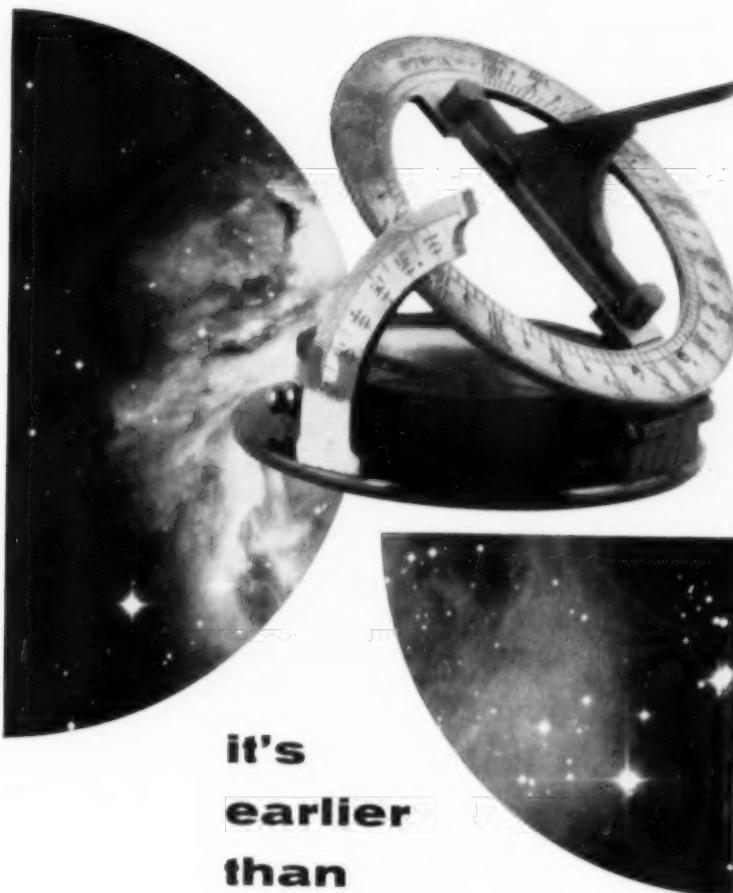
Since sixty men is an average year's recruitment goal—and estimating average mortality, about one hundred men may be in training at a given time. Thus the cost of the executive training program reaches an estimated half million dollars per year.<sup>3</sup>

The experienced recruiter who asks the critical questions that start the candidate expatiating in the way that will show him to be desirable—or undesirable—the scout who sees the wife on campus and expertly appraises her impact on the wife of the vice president or the manager in Lima (and these are only two of a hundred contributions the recruiter can make) is making a substantial contribution. The training program that poses insurmountable hurdles and the one that fails to challenge, both can precipitate the expensive attrition which under properly developed programs might not occur. The ability to identify colleges and universities which may produce the desired candidates—by virtue of their curricula, their faculties, their student sources, their placement procedures—can mean the saving of incalculable sums to the company embarking on a college recruitment plan.

#### Growth Has Been Steady

Someone suggested that formalized college recruitment was begun when George Washington sought to hire on campus a small group of engineers for his technical staff. For half a century, more or less, a few large corporations that are recognized for foresighted personnel programs have been systematically interviewing qualified candidates at their schools, and selecting and training them. There has been a steady growth in the number of visits by industry until now larger universities host up to a thousand or more corporate scouts and representatives of various units of government and utilities each year.

A few such visitors represent companies that call upon a substantial number of schools, but most are recruiting in a relatively local area. One can infer, therefore, that most recruiters are seeking a small



**it's  
earlier  
than  
you  
think**

An important group of engineers in the aircraft industry is already working on the threshold of outer space.

That group is at Martin, where creative engineering is being applied to research and development in the most advanced areas of rocketry and space systems planning.

No other organization in the world has a higher ceiling on its future.

This is the ground floor, and it's earlier than you think. If you are interested in exploring some of the most exciting engineering opportunities in the world today, contact J. J. Holley, The Martin Company, Baltimore 3, Maryland.

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**MARTIN**  
BALTIMORE

number of graduates. If a firm is able to project eventual executive assignment for a half dozen recruits and can provide specialized training and good growth experience for them, a somewhat formalized plan for recruitment and selection is indicated. A progressive and growing firm with five hundred or more employees—particularly if there is a technical aspect to the organization's activity—should interest itself in the techniques of collegiate recruitments. The tendency of recruiting firms to visit more schools may support the idea that more large firms are entering recruitment competition, but does not reflect on the logic of the smaller firm invading the placement office.

#### **Recruitment Must Be Done Well**

Is there a fallacy in the reasoning that the small concern which visits a single campus to select two men to grow to management stature should be as well fortified to do the job right as is the corporate giant with a college recruitment department staffed with full-time specialists professionally qualified for their assignment? Is it not reasonable that any firm undertaking to recruit on campus should do the job as intelligently, expeditiously, and effectively as the combined experience of seasoned corporate recruiters, experienced college placement directors, and previously processed students renders feasible? The advantages of sound recruitment are threefold. Dr. Donald Prosser, Placement Director, Los Angeles State College, in a statement to the Directors of the Southern California Chapter of the National Vocational Guidance Association,<sup>4</sup> said in effect that the value of perfecting college recruitment techniques redounds importantly to the student, the placement office, and the firm seeking staff. The student, he said, is saved valuable time in interviewing and his chances of making a career commitment to the right position are enhanced. The placement office, working cooperatively with its hundreds of visitors on a plan carefully contrived to afford a maximum of efficiency and effectiveness, is helped

in enabling a minimum staff to accomplish a maximum job. The expensive time of the company staff is saved, and they are enabled to visit more schools, interview more students, and recruit and select in such a way as to decrease the prospect of expensive high trainee turnover.

In an effort to harness over 600 years of practical experience of 75 companies and 45 universities, colleges, and technical schools, the Policyholders Service Bureau of the Metropolitan Life Insurance Company in New York<sup>5</sup> instituted a study and published a report that covers both recruitment and selection. This report deals with the problem of determining the number to be recruited and identifies four methods which are widely used—singly or in various combinations—to accomplish that end. The report identifies these approaches:

1. Annual estimate of vacancies
2. Long-range estimates
3. Fixed minimum requirements
4. Specific positions.

Factors that will influence future personnel requirements include anticipated growth of the organization, expanded special programs of sale or manufacture, expected trend of the industry, looked-for general economic experience, specific position vacancies as a result of retirement, dismissals, quits, transfers, deaths, and estimated attrition in the training programs themselves.

The Metropolitan Life Insurance Company survey suggests that the most usual approach to discovering the numbers to be hired is for the personnel department (under whose auspices, incidentally, the program of recruitment generally falls) to take a fall poll of the number and kinds of "select" personnel required by each department. That department usually secures a detailed description of the men who will be needed. The inventory normally includes specifications concerning age, educational and experience background, special physical qualifications, and other features.

One concern, not identified in the insurance company's study, has

developed a form to facilitate eliciting from industry the needed annual data. This device calls for the identification, in each ten-year age group, of key men, technical specialists, and supervisors; it compares the results with like totals in previous years, notes changes, estimates losses, identifies men presently in training, reflects numbers of anticipated transfers from plant personnel to trainee status, and, inferentially, concludes the number of "cadets" in each specialization to be hired.

Long-range personnel requirement prognostications are most often undertaken by large, long-established organizations that employ numerous personnel specialists and that have an extended experience upon which to predicate estimates. The "long-range" program as compared to the "hand-to-mouth" program is probably more logical and desirable when it can be assumed that the concern's services or products will remain in demand for ten, twenty, thirty, and more years. Such long-range forecasts do require correction from year to year, of course, as experience supplants prediction.

#### **Quotas Variously Estimated**

Often the immediate need for increased staff in areas of the company where specialized training is requisite will importantly influence the amount and kind of recruitment which is scheduled; but unless a continuing need can be foreseen for each trainee selected, the hazard of losing him owing to lack of growth or lack of challenge or both is great.

Many firms compromise "long-range" with "hand-to-mouth" principles in arriving at recruitment needs. It is not unusual to base quotas on estimated needs for three, five, or ten years ahead on the theory that expansion requirements often cannot be projected beyond such a period. The "Fixed Minimum Requirement" plan is, in effect, such a combination. It merely seeks to determine the minimum number of men needed from the standpoints of both immediate and later requirements.

# PHILCO

*Famous for Quality the World Over*

## Big Opportunities Await '57 Grads At Philco Corp.

PHILADELPHIA, PA.—Mr. L. J. Woods, vice-president and director of Research and Engineering announced today that Philco's pioneering and continuing growth and expansion in the electronics field—notably in color television, transistors, computers, data processing systems and guided missiles has opened up unique and rewarding opportunities for young engineers and scientists to extend their professional development upon graduation.

Mr. Woods also pointed out that Philco's recent entry into the home laundry field, and the necessity for developing entire new lines of automatic washers and dryers, in addition to other household appliances, has created many new and attractive openings for beginning engineers.

The location of Philco's research and engineering laboratories in the Philadelphia area provides members of its professional staff with a choice of outstanding accredited universities and colleges in which they may continue studies at the graduate level.

The company's liberal, full tuition refund plan encourages staff members to enroll at the University of Pennsylvania, Drexel Institute of Technology, Temple University, Villanova University or St. Joseph's College.

### Seeks Graduates In

- AERODYNAMICS
- CHEMICAL ENGINEERING
- ELECTRICAL ENGINEERING
- ENGINEERING PHYSICS
- MATHEMATICS
- MECHANICAL ENGINEERING
- PHYSICS
- PHYSICAL CHEMISTRY

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For Additional Information and Literature  
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Mr. Charles Lupton  
Manager, College Relations

## PHILCO CORPORATION

Philadelphia 34, Pa.

Although many long established organizations with enlightened personnel policies alert their divisions and departments by means of operations manuals, bulletins, and other methods to the hazards of not anticipating specialized personnel requirements years in advance of actual need, many concerns still fail to recruit for the future. And among those who do recruit for the future a sizable number still follow the very conservative procedure in estimating trainee need of basing quotas for hiring on specific position vacancies. A surprising number of firms in every field of activity report that their hiring at the colleges is predicated on the number of positions actually vacant when the campus recruitment is scheduled.

#### Projections Must Be Individual

There used to be a rule-of-thumb that a company should hire one college trainee per year for each thousand employees. Manifestly, however, any such hard and fast precept for arriving at college personnel requirements must be ill considered, for in a fast growing industry and expanding company the rule should be different from that for a concern where the omens are less auspicious. And in the organization generally peopled with oldster executives the projection must be for broader recruitment than in the firm where key spots are held by younger men.

What is the record of ratios of trainee-hires to incumbents? Information from 35 companies in 1950<sup>6</sup> showed a median of 2.5 recruits per 1000 employees. There was wide variation in the practice, however, among individual companies. Five had less than one college recruit per 1000 employees, the lowest being four tenths. Five hired more than 10 collegians for every 1000, the highest being 40.

The volume of campus hiring is based essentially upon long-range executive and specialist replacement forecasts and with a continual correction of estimated personnel attrition and company growth. It is scaled to insure continuity and

ever-increasing strength in every area of management.

It is a not uncommon occurrence for corporate directors to become so preoccupied with immediate production and sales problems that they fail to step away from the company to view objectively their key personnel, to consider the age and vulnerability of the first team and the qualification of the second string management group if any. One company president was quoted as follows:

We have just awakened to the fact that a lot of our top men are close to retirement and the men on the second team haven't yet been tested in action. Here we are going full speed ahead on problems of production, marketing, and cost when this big hole in our organization structure suddenly becomes visible. We need good men, and need them quickly! Where are we going to get them without going outside?<sup>7</sup>

On this point of going outside the organization, Mr. Ewing Reilly comments that wise companies guard against inbreeding by bringing in "new blood", but that to fill positions from the outside is involuntary. Reilly, a McKinsey and Company (Management Consultant) executive, says this about "replacement inventories":

Three of the steps just described earmarking executive positions for which the company must develop men, preparing man specifications for those positions, and appraising the qualifications of the present executive group provide the basic information which can be summarized in a replacement inventory. This will give top management an accurate yardstick for measuring company needs against the strengths and weaknesses of the executive group.

The replacement inventory is a top-management report. It shows the replacement need for each key position in terms of retirement age, expected promotion, and other pertinent facts

about the present incumbent. It lists the most likely first and second replacements for each position, together with a statement of their ready status, their need for development, and any other qualifying remarks. And it points out those positions for which a qualified replacement cannot be found within the present organization or developed reasonably soon.

The replacement inventory does not necessarily express management's intentions of promoting any individual to a given position. It is a factual report which tells top management: (1) what action could be taken today if an emergency vacancy were created, and (2) approximately how long it will take an executive now in the organization to ready himself for promotion.<sup>8</sup>

#### Cites Factors Causing Shortages

The same author and authority commenting on the shortage of qualified top personnel said:

A number of factors have contributed to this shortage of qualified executives:

1. Our era of specialization fails to equip men of executive caliber with the broad background needed for top-management jobs. Most of today's younger executives have remained specialists, working primarily in a limited field. Few have had the over-all experience which qualifies them for promotion to the top-management group.

2. During the depression years, it was often inexpedient to develop potential executives.

3. World War II took three to five years out of the business lives of young men who otherwise would be ready to replace executives of retirement age. (Many of these men, it is true, gained valuable management experience in the armed forces. But unless companies plan to tap that experience systematically, there will be a critical gap in their executive replacement schedules.)

# **WANTED:** Graduates who are eager to help Shell answer questions like these

How can we get a better picture of underground formations without test drilling?

How can we improve our knowledge of ocean floors, and of the formations beneath them?

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Will new developments in instrumentation make possible pipe lines that run themselves?

How can we improve the quality of petroleum products?

What is the best way to increase the high-octane gasoline yield from heavy crude oils?

What happens to lubricants in a plane approaching the "heat barrier"?

Where will the more concentrated sources of energy for tomorrow's aviation fuels be found?

How can we help the independent businessmen who operate Shell service stations increase their sales and profits?

*—and many more!*

These questions cover a lot of ground, don't they? Well, so does Shell. And so do the graduates we're looking for. As you can see, there's lots of work to be done. We're going places at Shell. Some of today's graduates will get the chance to come along

and help. You'll find more details in our booklet "Opportunity with Shell," which is available now through your campus placement office. Shell Oil Company, Personnel Department, 50 West 50th Street, New York 20, New York.

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**SHELL PIPE LINE CORPORATION**

4. Many large companies have found that men who work up by means of the conventional promotion systems all too often do not reach the top levels until they are past the age of maximum effectiveness. This is particularly true of relatively stable companies.<sup>9</sup>

In a presentation to the 1954 annual convention of the Western College Placement Association in Berkeley, California, a large company president described how he had summoned his top 55 executives to a mysterious conference, at which he had exhibited a room-sized chart showing the firm's hierarchy, and had then drawn across their names a series of cellophane overlays labeled five years, ten years, fifteen years, etc. He hereby illustrated dramatically to his directors and department heads how many of them would be out of play in five years, how few would still be playing in fifteen. In the case of this company the estimate of future losses from all causes was based on the experience of the past.

#### **Graduates May Be Classified**

Types of college and university men regularly sought by industry for special assignments can be variously indicated. The following outline suggests one way of grouping the classifications:

1. Nontechnical Bachelor's Degree Men
  - a. Commerce or Business Administration
  - b. Liberal Arts
  - c. Other
2. Technical Bachelors
  - a. Engineering
  - b. Scientific
  - c. Other
3. Master's Degree Men
  - a. Business Administration (MBA)
  - b. Scientific
  - c. Other
4. Doctors of Philosophy (Ph.D.)

Recruitment is in all areas, naturally, with the business administration baccalaureate applicants enjoying special popularity

with corporate personnel men. Demand currently exceeds supply, however, for engineers and most technicians, and a few firms employ specialists whose year-round concern is to hire Doctors of Philosophy for special usually technical assignments.

In December of 1953, 190 companies reported to Dr. Frank Endicott, Placement Director, Northwestern University, Evanston, Illinois, on the kinds of men they sought in 1953 and would seek in 1954.

The companies represented a variety of business interests including light manufacturing, food processing, machinery, banking, chemicals, oil, merchandising, steel, accounting, utilities, paper, carriers, automobiles, aircraft, textiles, apparel, building materials, tires, and numerous others. These concerns annually hire about 12,000 collegians.

A survey of the university curricula from which these trainees are recruited—or, more accurately, the areas of industry for which they are selected provides a fair insight into the classifications popular with national companies.

The study indicates top popularity for chemical and mechanical engineers in the technical group and for sales, general business, and accounting trainees in the non-technical.

The Endicott studies, published annually for eleven years and regarded nationally as a good index to recruitment trends, did not particularly consider the liberal arts graduate and his place in industry until 1954. That group has come in for broad general scrutiny from a dozen directions in more recent years, however. Several college presidents have lately raised voices in defense of the place of general education as a preparation for industry. Verbal fluency and the ability to write and speak effectively begin to loom more important to employers, and management consultants are beginning to speak of the hazards of the limited perspective that often characterizes the scientists or the specialist. Pervasive technical knowledges are, one hears, less likely to be encountered in business' general officers of tomorrow. Specialists may be shunned because of their reputed tendency to become preoccupied with secondary issues of methods and techniques.

New types of specialists are developing, however. I refer to the "professional manager" (alumnus of the business school) and the human relations specialists. Both groups, essentially unknown forty years ago, are looked for by campus scouts, the former with somewhat more avidity than the latter. There is some evidence that the business school men, prepared for ultimate line assignments in management, are in short supply, while the industrial relations majors, who "like people," are sometimes reduced to hunting for side and back doors to the lowliest personnel billet.

#### **Business Graduates Sought**

But since human relations skills are recognized as they must be—as being as critically important in the administration of business, as they are, it is inescapable that there will be a wider path beaten to the door, for example, of Cornell's industrial relations school.

Actually there hasn't been very much time either for the graduate school to develop or for industry to glean the significance and value of professional business training. The Graduate School of Business Administration at Harvard was founded in 1908, The American Association of Collegiate Schools of Business in 1916, a year when only 637 students received baccalaureate degrees in business administration. That number swelled to 4,948 in 1924. In 1952-53 there were 40,489 with Bachelors in business, 4,034 with Masters, and 109 with Doctorates.

The collegiate recruiter enjoys, therefore, a good selection of professionally prepared business graduates, who, in a certain sense, may be considered generalist-specialists;

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specialists not, of course, in the traditional scientific sense, but in the new "science" of business. Modern business management and modern schools of business, it should not be surprising to observe, are growing up together. "Each," says the author of an article titled "What Business Expects of College Trained Personnel," "is a function of the other, transmitting tensions of growth, reflecting changes, revealing bright spots and blind spots."<sup>10</sup> And he adds:

In the nature of the case, the requirements of business training have altered as the structure and pattern of business organization and behavior have evolved through successive stages of growth and change. These have led to demands for finer and more varied specialization. And, in an entirely different perspective, it is also true that the social status of business has increased fundamentally, with a corresponding breadth in the role expected of business leadership. It is small wonder, therefore, that there should be something less than full agreement among business men as to their expectations of college-trained personnel, and that communication between business and educational leaders has been neither orderly nor consistent.<sup>11</sup>

#### Cites Director's Dilemma

This writer suggests that the placement director must attribute to a "failure of communication" the dilemma in which he finds himself with *policy-level business officials* extolling the importance of the "well-rounded education" and of "knowing how to think" and denouncing "mere technique," and with *recruiters* from the same firms coming armed with specifications for graduates to be hired as specific as those involved in the procurement of a complex machine.

The business school graduate has the advantage over the collegian who featured Intermediate Beowulf in his curriculum in that he has immediate utility to the business concern, whereas his more culturally developed classmate may be able

to claim only growth capacity. It is not, however, the province of this study to recommend curricula revisions which would provide both immediate utility and good potential for development in our products at the placement office. Rather, it would seem, it is our objective here to suggest what classifications of those now available for employment the enlightened firm should seek.

In relation to the critical question of whether the recruiter should bid for a preponderance of engineers, or general business majors, or liberal arts men, the President of U.S. Rubber had this to say:

In modern business, a man usually starts as a specialist and up to a certain point he progresses by constant striving for greater skill in his specialty. To become an executive, he must shift his whole emphasis from advancement of his own skill to the management of the skills of others. He must concentrate less on things and more on people.<sup>12</sup>

The higher the level of responsibility the less the demand for scientific competence and the greater the tax on psychological and social competence.

So the Business Administration market turns bullish. And in certain firms there is a noteworthy tendency to recruit generalists and endeavor to impart a sufficient technical know-how in a carefully devised training program. Such a project seems to have considerable logic when one considers the weight of evidence which has been adduced (McMurry and Endicott surveys and other studies) to support the idea that from 7 to 9 of every 10 failures of trainees in business are attributable to inability to get along with people and to various manifestations of immaturity.

In the light of such studies, intrinsic qualities of character and personality are more significant. It becomes important to recruit from a larger first group to insure that the selectees will possess needed personal and inherent qualifications. Only 235 dairy manufacturing

majors emerged from the nation's schools in a recent year. Should milk concerns survey the whole graduating group and hire some English and Economics majors and expose them to an extended company on-the-job training curriculum to give them the industry know-how in anticipation of their eventual assignment to executive duties in dairy plant areas? It is a good question, and one increasingly being answered in the affirmative.

#### A Hobson's Choice Is Offered

William Whyte, Editor of *Fortune*, focused on a problem first cousin to the one we are discussing. Addressing a cross section of American presidents and personnel directors (I happened to be one of the latter group), he posed what he later conceded was a Hobson's choice question. If they had to choose between the two following schools of thought, which of the two would they lean toward?

1. Because the rough and tumble days of corporation growth are over, what the corporation needs most is the adaptable administrator, schooled in managerial skills, and concerned primarily with human relations and the techniques of making the corporation a smooth working team.

2. Because the challenge of change demands new ideas to keep the corporation from rigidifying, what the corporation needs most is the man with strong personal convictions who is not shy about making unorthodox decisions that will unsettle tested procedures and his colleagues.<sup>13</sup>

The October issue of Whyte's magazine in an interesting article titled "The Crown Princes Of Business" (management-trainee in a less journalistic phrase) recapitulates the responses:

Ninety-eight executives replied. They chafed at the idea of settling on any one specific type. They mostly felt that both types would fit into the organization.

To be considered at all for top leadership, the administrator would have to be a man of some

# *Opportunities for college graduates*

## *in*

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### POSITIONS For TECHNICAL GRADUATES:

**MANUFACTURING:** equipment design and development; research and development; production engineering; production control; quality control; industrial engineering; equipment manufacturing. Previous experience desirable for Technical training programs.

### NON-TECHNICAL GRADUATES:

**SALES:** accounting; credit; finance; industrial relations; purchasing; production control; quality control; production (manufacturing).

### METHOD OF TRAINING:

In most departments an intensive, time-scheduled program of up to two years is followed. In others, graduates receive initial training for a particular job opening. Objective: to develop future supervisors and managers. It is desirable for the applicant to be willing to relocate.

### LOCATION OF PRINCIPAL OFFICES:

**H**ead office, New York. Metal Division, New York, Chicago, San Francisco. Fibre Drum Division, Van Wert, O.; Paper Container Division, Newark, N.J.; Bond Crown & Cork Division, Wilmington, Del.; Shellmar-Betner Division, Mt. Vernon, O.; Research and Engineering Divisions, Chicago; Paper Manufacturing Division, Hopewell, Va.; Hazel-Atlas Division, Wheeling, W. Va.; and Robert Gair, Paper Box Division, N.Y.

*Raymond L. Rawls, Director of College Relations*

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imagination; conversely, the individualist could not have survived in the modern corporation if he couldn't get along reasonably well with his colleagues . . .

Many felt the solution was to use one type as a counterfoil for the other.

Interestingly, the personnel men voted 71 per cent in favor of the administrator, while the presidents were split 50-50 between him and the individualist. Those of us in personnel work should, perhaps, heed a warning here. *Fortune* said the vote reflects a subjective view of the corporation by the personnel group. This would seem to be a fair comment. Our job gives us a focus on the common denominator, human relations. This, one personnel man pointed out, is an abstraction. "Some of us get so hipped on these abstractions that we look on the line work of making things and selling them as subsidiary functions."

#### **What Place For The Generalist?**

Back again, briefly, to the specific subject of industry recruitment of the liberal arts man. Two of the most impressive symposia on this subject stemmed from studies sponsored by Mr. John Adams, Placement Director of the University of California at Los Angeles, and by Dr. Frank Endicott, Northwestern University. The former foregathered about a hundred impressive educators and industry people for a full day's "free-for-all" debate on the place of the generalist in business. Publication of the proceedings was deemed to be sufficiently timely and vital to be sponsored by the Western College Placement Association.

A fair summary of the discussions would be that there is a developing defense of the English major in particular and the follower of cultural curricula in general on the part of corporate leaders and personnel people. There appears to be a growing belief that articulateness is vital and that oral and written communication is basic; also, that in circumscribed educa-

tion there is hazard of developing a too limited perspective in an executive with need for the broadest view.

The success of the whole program of any organization embarking on a hiring project for collegians will be contingent importantly on the suitability of the men hired. Concerns newly entering the recruitment arena should benefit from the experience of those experienced in this specialized field with respect to the advantages often overlooked by newer recruiters of not bypassing the graduates with more general preparations. An accounting trainee slated for auditing and, ultimately, controllership for example, does require a good accounting base a preparation available at the Wharton School of the University of Pennsylvania, incidentally, and not at the Graduate School of Business at Harvard. There the curriculum is so carefully devised to prevent specialization that only one course in "control" (designed, as it were, to enable the vice president to interpret financial statements) is offered. And for scientific billets, a physical education major may hardly be the best recruit. But for production management assignments, a liberal arts man carefully trained on the job may work out well. For management in general, a management major (business or commerce curriculum), well endowed with common sense and with a broad interest in things and in people, may prove the ideal selectee. The tendency is to be less and less restrictive as to the area of recruitment except when the selection is for sections of industry where a pervasive technical knowledge is absolutely requisite.

Dr. William A. Johns, Public Relations Director of Westminster College, New Wilmington, Pennsylvania said:

Basic to successful hiring, regardless of the profession or vocation by which one earns a livelihood, is the development of a well balanced personality. To secure this balance every discipline of life must get adequate consideration. This is the goal of liberal education.<sup>14</sup>

Dr. Johns explained that education, to be adequate for our day, should accomplish the four objectives of: (1) giving students a life perspective, (2) developing adequate vocational competence, (3) developing an awareness of individual, moral and ethical responsibility, and (4) giving the students a genuine appreciation for the highest values in life. Concerning the second objective, this authority had a broad interpretation. He continued:

This vocational competence is much more a matter of comprehensive understanding of, and knowledge concerning, the vocation than it is specific technical skills. Technical skills vary widely with each individual job, and can be mastered quickly when there is a foundation of that general knowledge which is required for the profession. One should not think of specialization until this foundation has been secured. General education should be followed by concentrated study in the area of special interest in order to acquire detailed knowledge in the field. With this background, the technical skills can soon be acquired and vocational competence will be assured.

#### **New Professor Evolving**

With this size-up of the liberal arts argument I believe most experienced and qualified company recruiters would agree. And a new type of professor, as Dr. Charles W. Voris points out, is on hand at the business school and in the colleges of science to implement that "concentrated study in the area of special interest." The Los Angeles State College Professor of Personnel Administration wrote:

The typical professor of business administration today has had considerable practical experience in industry, as well as several academic degrees. He is not necessarily dreaming of the unattainable, but of things which will improve manufacturing processes and methods . . .<sup>15</sup>

The assumption is no longer implicit that a liberal education is for one who is not going to have to



Left to right: Dan Palmer, Texas A&M, '54; Ted Webb, Caltech, '55; Bob Stancil, Georgia Tech, '54; Chuck Herndon, Illinois, '50.

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work for a living. The Oxford English Dictionary definition of it as "an education fit for a gentleman; that is, not professional or technical" becomes, in the new view as Gideon Seymour, vice-president of the *Minneapolis Star and Tribune* pointed out, increasingly questionable.<sup>16</sup>

#### **Specialists Are Not Enough**

In a talk to the graduating class of the University of Chicago, the President of the International Harvester Company pleaded for more "generalists."

We have engineers of assorted kinds. We have lawyers of many breeds, from patents to admiralty. We have market analysts and sales engineers and industrial relations experts and credit men and research metallurgists and time study engineers. We have accountants and economists and statisticians. We have purchasing agents and traffic men and chemists. All of them, no doubt, are good to have. All seem to be necessary. All are useful on frequent occasions . . .

But it has reached a point where the greatest task of the President is to understand enough of these specialists so that when a problem comes up, he can assign the right team of experts to work on it . . . There must be others like me who sometimes wish for a good old-fashioned jackknife with twelve blades and a corkscrew that could handle almost any job in passable fashion.

Because business has wanted these specialists, the colleges and universities have produced them by the thousands . . . and that's fine, as far as it goes, but it still doesn't let the president sleep at night.<sup>17</sup>

The president continues that he "tosses plenty over the problem of finding executives who have a wider knowledge, more general savvy and enough background of the right kind to run a whole group of things." He lists, among the disadvantages of specialization, limited knowledge, interests and experience, the judg-

ment of good and evil, right and wrong by the standards of his speciality, the industrial relations man for whom life begins and ends with a legalistic interpretation of the union contract with never an overview of the human individuals who people his plant. Many specialists, this authority agrees, are not promotable; accordingly, their morale may suffer, creating strains in the "middle management" area where most of them are found.

The answer, contends Harvester's articulate president, must start with the educational process—more liberal arts—the production of an educated man as well as a trained one.

*Fortune* magazine in May 1953 recounted how at Yale in 1950, 18 of 66 corporation talent scouts were willing to talk to arts college graduates and at Johns Hopkins in 1952 only 16 per cent of 200 would. President McCaffrey points out that as long as hiring policy is out of tune with management thinking and talking, we'll continue to get overspecialization.

McCaffrey comments on the tactic of taking the specialist away from the tree to show him the forest. One way to achieve this is "coaching"—moving promising men through many of the functions of a business to give them a broad perspective. This, of course, immediately creates the strains and pains that accompany the jealousy that must stem from such a program. Another tactic, of course, is a junior grade approach in an appropriate collegiate setting.

Perhaps much of what has been said about the importance of keeping an open view toward the liberal arts graduate could be resaid in this way. Our trainees have got to know how to get along with their co-workers and their customers and to achieve a certain degree of social adjustment—and they must be able to adjust to changing business climates. To do this, they must have a broad and not a narrow base from which to work.

A Philadelphia marketing and management research firm reported its findings in a study of the

collegiate curricula of a hundred business executives and bankers selected at random from *Who's Who*. Thirty-one had no degrees at all, four had specialized degrees, twenty-nine had B.S. credentials, and thirty-six boasted *B.A. degrees*. This seems significant from two standpoints. It proves that an "arts" background works in business administration; and, since it is difficult to avoid introducing an autobiographical note into the recruitment policy, it suggests that "generalists" will continue to be specified for collegiate hiring.

There are seven ways in which college graduates generally come to industrial positions. These may be indicated as follows:

1. "Walk-ins" and "write-ins" at plants and offices.
2. Advertising citing degree requirements.
3. Referral by friends and alumni now in the firm or by persons acquainted with the firm or its people.
4. Referral by alumni associations, technical societies, professional fraternities, or similar groups.
5. Referral as a result of letters to colleges—placement offices, professors, deans, campus groups, etc.
6. Direct recruitment by company representatives on campus through placement office, department heads, deans, professors, etc.
7. First contact through placement office or other campus source with follow-through and commitment at company plant or office.

#### **Less Hiring Is On Campus**

The last two sources account for by far the greatest proportion of commitments in firms sponsoring formalized recruitment programs. In recent years, moreover, less and less hiring is accomplished on campus—now less than 10 per cent—so that the plan 7 has become the most usual recruitment technique. (Most sought after students are suspicious of company representatives who do not offer an expense-paid trip to the company location.)

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- (4) **Bearing manufacture**—design, production, quality control methods.
- (5) **Bearing application engineering**—industrial, automotive, railway, agricultural, aircraft and many other fields.
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locations annually seeks 60 trainees at 40 colleges. This concern studies its recruitment sources each year. The usual pattern is about 45 hired under plan 7, about 5 under the sixth program (usually late hires where a plant trip is not feasible), about 5 from "walk-ins" at all locations, and the balance of five divided among all other sources. Of course, some companies which do not use plans 6 and 7 depend on the first five sources for all their special college personnel.

#### **Companies Avoid Short Cuts**

Richard S. Uhrbrock, in his *American Management Association* booklet, writes regarding "Recruiting the College Graduate":

When demand exceeds supply, companies may modify their hiring methods. In a study of 'company policy' with respect to 'quick hiring practice', the National Industrial Conference Board reports: Anticipating a shortage of qualified graduates, some companies are signing the men right on campus. Recruiters make definite job offers following interviews at the colleges. Other companies while admitting that they might lose some recruits by pursuing a more deliberate course, withhold an offer until the student has had an opportunity to visit the company . . . more than 90 per cent of the reporting companies are holding to their established practices of careful selection, despite pressure to try short cuts.<sup>19</sup>

It is the observation of this writer that the more competitive recruitment at the colleges becomes, the less feasible the "quick hire" is. Only the less appealing candidates are likely to welcome an on-campus offer. A wanted man who has been offered a half dozen plant trips may view askance a firm job offer after thirty minutes or even several hours of campus conversation. More important considering that the company is planning an investment of \$5,000 to perhaps \$50,000 or \$100,000 in the selectee over a period of years is it not the more considered policy to undertake a

maximum of interviewing with the applicant (and his wife) with multiple meetings scheduled, a thorough-going investigation of background and experience records and, perhaps, a battery of psychological tests? Thus, the campus interview assumes its rightful place as a brief "screening" or "get acquainted" preliminary contact. Several of the regional associations of Placement Directors have drafted codes of ethics for recruitment, which frown on the "quick hire."

If the objective is to hire a Junior or Sophomore for a summertime "get acquainted" experience, the interviewing and investigation can, of course, be less fastidious since the commitment is a less serious one and since there will be later opportunity to assess the qualifications and aptitudes of the trainee.

The prevalence of a "preliminary interview form" for use in college interviewing further points up the practice of regarding the college contact as a first step only as a means of identifying candidates for further consideration. According to a recent study 37 per cent of the concerns which visit schools use such a form. Of the balance, it is the usual expectation that the firm's long form will not be completed until after the campus meeting.<sup>20</sup> The same study asks:

Does your company invite those graduates who appear desirable to the company premises to be interviewed by a number of company officials for final selection of graduates for employment?

Answers came from 242 firms: 90.5 per cent replied "yes," 9.5 per cent said "no."

In recent years the graduate who is completing his period of military obligation is assuming more and more significance in the over-all recruitment picture. With as many as 80 or 90 percent of the graduates of the four-year liberal arts curricula entering the service some time after graduation, the military services loom as a vital area for hiring. No practicable means has been yet devised by any of the military

organization, by the Veterans' Administration, or by the United States Employment Service for meeting collegians about to be released. Accordingly, such candidates commonly come through the first five sources described above and through their college placement or alumni offices. Their company contact is generally accomplished by correspondence. A majority write their Placement Director about 60 days before release and are furnished a suggested list of company contacts. Some placement offices circularize their in-service alumni with periodic reports of industry opportunities. Others, conversely, appraise interested employers of the specia<sup>l</sup> qualifications of alumni—including veterans—by periodic bulletins.

#### **Service Contacts Listed**

Most companies (about 88 per cent), interviewing draft vulnerable men on campus, will tender them a temporary pre-service billet to enable a brief mutual appraisal. Some concerns, unable to do this, establish a "military list," and keep in touch with interviewees who seem feasible for postservice employment by periodic letter, by mailing the company house organ, and by other means. A very few have a plan for payments of partial salary to men who are wanted after their military experience. In any of these last situations there is no problem of facilitating the company-student contact, since the employer is in direct communication with the student-service man and/or vice versa. Concerning direct hiring at separation centers, Robert Jolly had this to say:

Considerable difficulty has been experienced by those organizations who have attempted to recruit discharged graduates at military separation centers. Increasing opposition from military authorities and the Department of Defense discourages this practice. Those organizations who anticipate recruiting at separation centers are apparently not aware of its impracticability and government resistance.



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## Chapter Two

### *Typical Placement Facilities on College Campuses and the Adequacy of their Operation.*

The effectiveness of a company newly embarking on a program of college recruitment will be enhanced if it is aware, in advance, of the nature of the on-campus facilities available to implement the program. This chapter seeks to give some impression of these facilities, of the way in which they operate, or seek to operate ideally—and of the typical backgrounds of their directors and staffs.

Most of the larger educational institutions maintain student placement services, variously denominated, the objective of which is to facilitate employment of graduates. Their staffs may number from one or a few to fifteen or more. At some of the smaller colleges supervision of this function may be only a part-time activity of a Dean or Assistant Dean of Students, or someone of similar responsibility.

The philosophy of the institution with respect to its responsibility for student employment, its resources, the nature of its principal curricula, its location with relation to an urban center, and other considerations are all likely to be factors affecting the way the placement function develops.

Some of the larger universities have a recruitment service much like the one at Purdue. More than 1,200 recruiters annually besiege its central placement office, which occupies impressive suites in the Administration Building. The placement head is grateful when part of his activity can be decentralized, i.e., when a recruiter will agree to set up his interviews through the Dean or Assistant Dean of one of the colleges, such as the School of Agriculture. In such a situation positions available to non-agriculture graduates are advertised through the central placement service, and interested candidates are advised to make direct contact with the Agriculture Dean's office.

At the University of Minnesota, on the other hand, where recruitment is probably almost as intensive, no centralized recruitment office is operated and the recruiting firm must make direct contact to the college of its prime interest. To the placement office of such a college, the Business School, for example, liberal arts and other eligible graduates can be referred.

It would almost seem as though there are as many plans for placement office operation as there are colleges and universities, since the exact same pattern seems not to be followed at any two. However, for purposes of classification the placement function can perhaps be described as "centralized," "decentralized," or a combination of the two.

While the centralized type of operation is likely to prove the most efficient, in general, for a firm hiring students from different colleges, a combination of the two may be just as desirable. The professional qualifications of the concerned staffs, their experience, and the funds available to facilitate their program may well prove to be more vital concerns than the type of organization under which they function.

One prime advantage of a decentralized arrangement is the intimacy of acquaintanceship with the students of those who furnish the liaison between them and the hiring organization. That is to say, the School of Business at the University of Michigan probably does a better job for its graduates than would be done for them if the placement service of the business school was discontinued and the job-seeking seniors were obliged to go through the complex and efficient but more impersonal routines of the general placement bureau at the Ann Arbor institution. The Professor of Business Policy, who for more than a decade has, with a placement assistant, fathered the operation at the Michigan School of Business, has a personal acquaintanceship with and appreciation for the virtues and an awareness of the defections of every graduate. More than that,

he is on a first-name basis with all the perennial company scouts, he knows their firms and which of his alumni have fitted in well and which have felt unchallenged or overtaxed. His counsel to student and recruiter alike, in these circumstances, has real meaning. His wisdom has undoubtedly saved many a vacillating graduate years—perhaps a whole career in the wrong setting; and to the company unsure of the candidate's potential in a critical billet his understanding of business operation and of the assignment and the man has often been "money in the bank."

### **Centralization Has Advantages**

However, the blue chip concern that dispatches one recruiter to screen engineers, scientists, accountants, and arts school men must often reconcile itself to having him spend a day at each of the schools sponsoring such graduates if placement is decentralized. Whereas, the effective operating central placement bureau at the great university with its placement advisers in each of the colleges can set up a program for such a representative which will introduce him in one day to every diverse classification of job seeker. And in a well-run setup like that at Cornell University, the recruiter can dine with the faculty representative of each of the schools and gain some impression of the applicants' campus records and reputations. The Cornell clan seeks to combine the advantages of decentralized placement in a centralized program by bringing to faculty placement representatives from each college some understanding of the openings available and by introducing them to the company representatives.

A study by the American Council on Education Studies, which was published in 1949, advocated centralized placement (and centralized recruitment). Since the report is the joint product of individuals with diverse experiences, its tenor is probably especially important. Wrote the Committee on Student Personnel work:

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The College or University can render a more effective placement service to its graduates, and the employer can obtain the kinds of graduates he wants with a minimum of effort if general arrangements and contacts are handled between one company agency and one campus placement agency.<sup>21</sup>

#### Favor Centralized Service

The Jolly Survey referred to earlier inquired of 233 companies: Which of the following do you prefer?

(1) A centralized placement service assuming the responsibility for all graduate placement of the college or university. (2) A decentralized academic set up where each educational department places its own graduates.<sup>22</sup> The replies indicated that 85.8 per cent of the respondents favored the centralized plan, 14.2 per cent the decentralized one. Of 124 companies reporting to Dr. Endicott of Northwestern in 1950, 97 favored centralization, 27 did not.<sup>23</sup>

The physical facilities of placement offices of American colleges and universities are generally fairly limited. The function, particularly at the smaller liberal arts schools, is often in a more or less stepchild status with a non-insulated portable building on an edge of the campus being allocated as a rendezvous point for company visitors and job-conscious seniors. Often no provision is made for private interview rooms, and vacant classrooms must be pressed into use. Sometimes the budget for placement is so restricted that the directors' only aids are volunteer or low-paid students on a part-time basis. When graduate students from the business school are so assigned and when the appointment is considered honorary and the top men compete for it, such staff may operate more effectively than indifferent high school girls from off campus, who are the only ones attracted by the low salaries paid.

There are shining examples, however, of ample and even pretentious offices for placement staffs. At

those institutions where the president regards the placement set-up as a kind of store where industry—the same industry whence come the endowments—comes to view the products of his institution, the facilities are likely to be more adequate. At the University of Pennsylvania, the very competent placement director presides over half a floor of private offices, including a carpeted and very modern suite of interviewing rooms where company representatives find every aid to their comfort and efficient functioning.

The method of operation of the placement offices varies as much as do the physical facilities. Cordiality to the industrial visitors and abetment of their activity run a wide gamut. At a small Indiana liberal arts college, where the Assistant Dean of Students wears the placement hat part time, the faculty frowns on the interruption of academics. The placement activity is regarded so indifferently that a visiting recruiter who had arranged his campus call two months before saw only four men in his four hours at the college, because the others were "in class" and it was against school policy to excuse them. An indifferent time schedule is maintained by the interviewees at this college; the men seeking employment know nothing about the hiring company, nor, for that matter, have many of them formulated clear impressions of the type of careers which they seek. Their attitude in the interview is "What have you to offer?" not "What have I to give?" At a not very distant state university the picture is the exact opposite. The registrants for placement must successfully complete (for credit) a one-semester hour course in interviewing procedures. They are fastidiously on schedule, are amazingly informed on company lore, look sharp, and follow an impressive protocol in the interview. It is a very different and—from the standpoint of the business man—a much more appealing atmosphere.

The type of implementation that a placement director can offer his

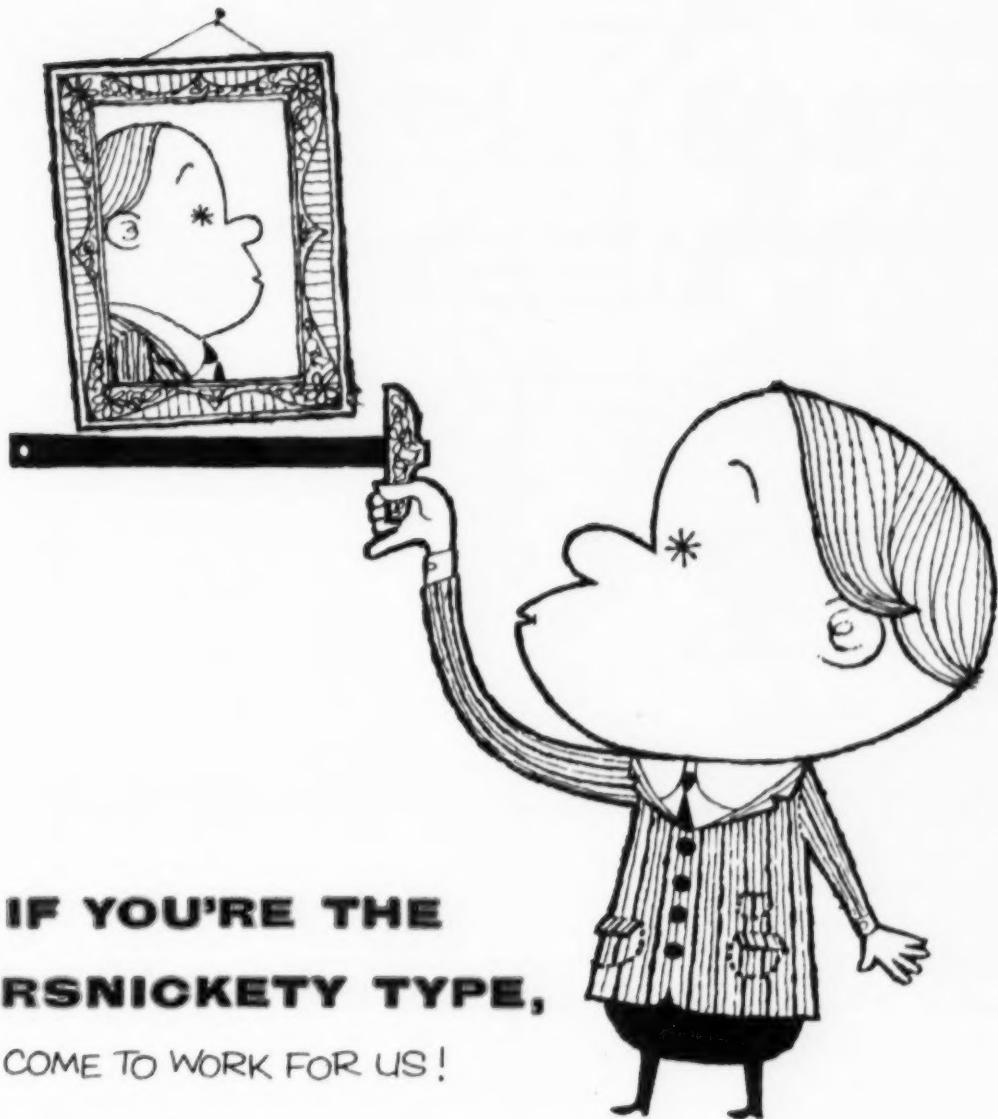
guest from the business world may be very valuable and may well make the difference between sound and unsound commitments. First, there is the matter of providing ample background data on the candidate. Under ideal auspices, his scholastic record, earnest faculty appraisals, the skilled evaluation of a placement office counselor, test battery scores, and the reference comments of previous (usually summertime) employers are all available in the file folder of the interviewee, which is made available for the recruiter's review before his meeting with the graduate. Of particular value is the indication on the placement office form of the candidate's statement as to the areas of his principal interest. This has special significance, since at the time that form was executed the student had no awareness of the job opportunities for which he would probably make application and could not, therefore, slant his answer. Thus, the applicant for a sales position to the XYZ company, which came to campus seeking only salesmen, becomes less attractive when XYZ's recruiter discovers that a month earlier his applicant had listed "production" or "accounting" as the area of his prime interest.

#### Luncheons Often Arranged

The alert placement director usually tries to schedule a luncheon or other meeting with faculty representatives best acquainted with the men the recruiter is meeting. This affords him a chance to spell out the full nature of his need and to fill in the faculty on the implications of the opportunities his company offers.

The placement officer greatly aids the representative of industry when he maintains a full and current library of data on visiting firms, for such information can steer students toward and away from concerns. When the graduate accepts a job offer from a firm about which he has full information, he is less likely to encounter disillusionment as his acquaintance with the organization extends.

The adequacy of communication of the placement office to the senior



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class and the reputation of that office with the graduates are both factors that influence the effectiveness of the office.

The value to the recruiter of the placement function is also conditioned by the amount and kind of screening the placement staff does for him. If all his interviewees are impossible because nobody compared his need with their background, his visit has been fruitless and expensive.

For the recruiter who brings his own psychological test battery, the placement office which can provide a psychometrist for its administration is naturally on his preferred list.

Many placement offices as a routine service arrange hotel accommodations, transportation, reservations, dinner meetings with applicants and their wives, and a half dozen other small but important aids to the rushed recruiter.

Others, on the other hand, treat him with tolerance rather than cordiality, furnish no student data, fail to read his specifications for men sought and to pass the word to the students.

#### Most Directors Qualified

As the Jolly report shows, recruiters generally regard placement directors as well qualified for their assignments. Usually the placement head is an alumnus. Often he holds advanced degrees. At many larger institutions the director is a former professor holding a doctorate and he is backed up by a corps of master's degree people often with backgrounds in psychology. Placement is becoming increasingly professionalized, and the amount and nature of industry's demand will speed that trend. Moreover, the standards industry sets for the placement office service it expects will influence the kind of service received. The "President to President letter" (letter from the president of the recruiting firm to the president of the educational institution) expressing appreciation for the campus facilitation of re-

cruitment will surely directly reflect in a "tauter" placement office operation and a more effective one.

Industrial representatives are frequently vocal about suggested improvements for placement office facilities and procedures. The *Journal of College Placement* normally annually features an article bearing on this subject. Dr. Endicott's annual publication "Trends" often provides space for such comment, and the annual regional placement office meetings generally provide panel or other discussion of what the recruiters regard askance in campus placement activity. The following tabulation includes excerpted items from a random list of industry suggestions to placement directors, which came to Dr. Endicott in connection with his report.

Each applicant should bring his own personal data sheet to the interview and allow the recruiter to keep it.

Insist upon having applicants review all company literature before the interview.

Instill in seniors the idea that opportunity to work hard and to advance in the company is more important than starting salary.

Inform recruiters of luncheon arrangements, if any.

Provide parking permits for visitors with information concerning location.

Keep files of the company materials up to date.

Be sure that those who sign up for an interview actually arrive.

When the company gives reasonable and explicit instructions to the placement office, read them and comply insofar as possible.

We see no point in "padding" the schedule just to fill it up.

Inform companies of next graduating group and dates for interviews.

Placement officers should make more personal visits to companies.

Emphasize the responsibility of the interviewee to answer his correspondence.

Make a special effort to get out the men in the upper 5 per cent or 10 per cent of their class.

Inform the interviewer of any desirable or undesirable characteristics of the student which can not be determined in a brief interview.

Develop a career counseling service, particularly during the sophomore year.

Post notices on departmental bulletin boards as well as in the placement office.

Provide more opportunity to discuss candidates with professors.

Reduce the work load of placement offices so that they have more time to screen candidates.

Discourage plant visits when the student has just about made up his mind or has made a commitment on another job.

Provide information about men out of school from two to five years who are interested in making a change.

A few act merely as a clearing house with no counseling services.

Hold career seminars for underclassmen.

Do not schedule June graduates during the period for recruiting midyear men.

More full-time, well-qualified placement directors.

More personal contact between placement director and students.

Resolve jurisdictional disputes between the placement office and the department heads.

It would help if there was a greater degree of standardization of forms and procedures.

Instruction should be given to applicants regarding personal appearance, dress, etc., prior to interview.

More help should be given students in objectively choosing a career and a company.

Conduct a course in "how to apply for a job."

Dr. Endicott comments that "... not all of the suggestions may be practical or possible in certain institutions."

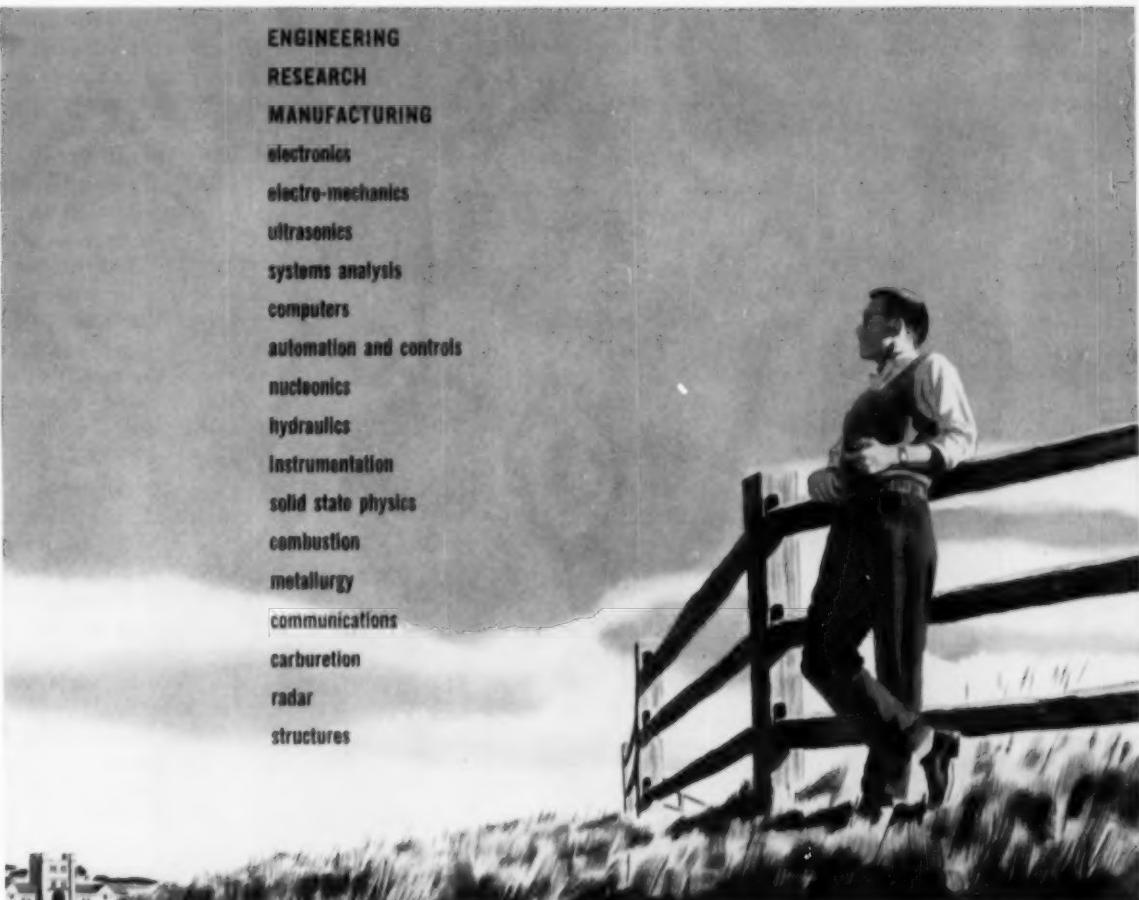
On the subject of facilities and services of the Placement Office the American Society of Engineering Education's "Recommended Procedures in Interviewing and Placement of College Seniors" contains certain comment.<sup>24</sup>

The schools should provide adequate physical facilities for the conducting of interviews. We recognize the present over-crowded situations but nonetheless, in all fairness to the student body, each student should have the opportunity of presenting himself to his prospective employer in a way that will not cause him embarrassment and will enable him to present his story without interruption. We do not recommend that the schools do more than provide a small space so that the interview can be conducted quietly and in private.

The general program of guidance and orientation should be expanded and improved upon. It was generally felt during the last few years that, with the very large number of students, these vitally important items have been sadly neglected.

It should be the school's responsibility, especially in those

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institutions having centralized placement offices, to provide adequate contact with faculty members who have intimate knowledge of the student and his work. Some of the schools have established a "coffee hour" late in the afternoon, a procedure that might well be followed by other institutions. These periods of contact should be conducted during the regular school hours as it is unfair to ask faculty members to stay over in the evening or to give up their personal time.

The school records should be available to industry in such a form that where necessary industry can make its own pre-selection.

It should be the responsibility of the placement office or the dean's office, when an industrial organization is looking for several types of students, to see that there is an adequate distribution of students from various programs available for them to interview.

#### Negative Aspects Cited

Some interesting opinions bearing on the facilities and effective functioning of the placement office were submitted anonymously to *School and College Placement*,<sup>25</sup> in response to an invitation of that journal which went out to leading companies in four key industries, all of which extensively employ graduates. One commentator wrote:

The chief reasons why I fail to return to certain campuses are as follows:

1. Including persons on my schedule who do not meet the general specifications of age, marital status and academic qualifications furnished by me prior to the campus visit.

2. Failure to see that persons coming in for interviews have the opportunity to read descriptive material furnished by me for that purpose. We expressly request that this opportunity be given since it saves valuable time that can be used to better advantage in finding out about the individual rather than spending it in

repeating information that is contained in the descriptive material.

3. Failure to set up the interview schedule on prescribed time limits. For my particular openings and for the type of interview I conduct, I request a half hour schedule with a minimum of twenty minutes. A ten or fifteen minute schedule is useless to me.

4. Failure to provide a private space for interviewing. Interviewing in hallways, sharing rooms with representatives of other companies or interviewing in offices where people are working makes a visit useless. The space does not have to be large or the furnishings luxurious—just private, that's all I ask.

5. Running campus "big wheels" through the schedule to give us a treat, especially when these men tell us that they plan to go to graduate school or into professional athletics.

6. Cramming the schedule with the hard-to-place members of a class in the hope that we will slip and hire one or that at least these students will gain experience from these interviews. One or two of these are all right, but when half the schedule is so taken up, I consider it an imposition.

7. Posting the notice of my visit on the bulletin board the day of my visit, with no other effort to line up people for my schedule.

Another unidentified recruiter said this about placement office facilities and cooperation in answer to the same question which invited comment on "Why Recruiters Fail to Return to Some Campuses":

. . . a poorly organized, inefficiently run placement bureau at a college could be a deterrent to returning to that particular campus.

Usually a company representative is pressed for time during the recruiting season. When he arrives on a campus he wants to see a maximum number of qualified students in a minimum amount of time. After seeing the students, he desires to check records and to see the professors

who know these students. A poorly organized placement bureau not properly set up to assist or to arrange for doing the above wastes the recruiter's time.

At the same time, the students at that college may be adversely affected by this inadequate placement service. The recruiter may not be able to see all the students he should or to get sufficient information on those seen, or the student may not get adequate attention from the recruiter because of the rushed and disorganized conditions.

#### Good Bureau Assists Students

A well-organized, efficient, pleasant, well-staffed and well quartered placement bureau can help a company recruiter immensely and by doing so, materially assist the students of that college in getting adequate and complete consideration from the company representative.

Any college person who has contact with the students in their training and education, or in counseling and guidance work, particularly if he is respected and well thought of by the students, can adversely affect or immeasurably help the acceptance by the students of any company or institution that visits the campus to recruit.

Any company or institution expects the college personnel to be neutral and unbiased in counseling or guiding the student along employment lines. The student is seeking and should receive the real facts about any concern. *Rumors* of any sort should not be passed along to the student. The facts about the companies or institutions should be passed along to the student, allowing him to make his own decisions based on these facts. It should be ascertained beforehand that the facts are correct.

A poor acceptance by the students of a company because of rumors of partial facts that have been given to them can be a cause for not returning to a campus for recruiting.

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In conclusion, a recruiter will not return to a campus where he has been unable to obtain well qualified personnel. This may be due to any of the points discussed above.

Campus recruiting is a co-operative undertaking involving the college, the graduate and the company. Its success is substantially dependent upon the spirit of cooperation which exists between these participants. From the viewpoint of the company recruiter, his continuing visits to a specific campus are governed largely by the results his company obtains, and these results seem to correlate closely with the general attitude or spirit of co-operation with which the college undertakes its placement assistance.

#### Screening Is Evaluated

Related closely to the question of adequacy of placement office facilities and operation is the matter of screening of applicants. Students of the School of Business and Public Administration of Cornell University in 1951 conducted a study of "Campus Job Interviewing" at their own institution. Thirty-three companies and forty-nine graduating students were tapped for reactions and the findings were interesting. Under the heading "Screening of Applicants" this information is given:

An attempt was made to ascertain whether companies pursued the practice of interviewing all interested parties, or instead restricted the interviewee group to those who, for example, ranked in the top quarter or fifth of their class. To the direct question as to whether there was any screening before the interview, 55% replied in the negative, 9% indicated always, and 27% claimed that this practice was seldom followed. The remaining 9% adopted this procedure frequently. It appears then that though there is limited screening by the company before the campus interview, and though it is felt that the Placement Service does or

should do some elementary screening, generally speaking, companies will see all aspirants for their positions.<sup>26</sup>

From the interviewer's point of view it probably should be pointed out in all candor that *some* screening is desired, though often not found at the placement office. The seasoned company agent is less likely to want his interviewees restricted to a top scholastic group than to a group or groups with suitable academic preparation for and, even more important, interest in—and sometimes experience in—the field for which he is recruiting. Every recruiter should understand the problem of the placement office in providing company contacts for borderline graduates. But it is an imposition on the student as well as the company to refer on a sales opening an accounting major who lacks interest in and aptitude for the sales field.

Such a viewpoint is in conflict, in a degree, with the view expressed by Dr. Howard S. Kaltenborn of the University of California, who in an address to the Second Annual Conference of the Western College Placement Association said:

. . . we mustn't try to place only the elite college people, as they will take care of themselves . . . we must engineer jobs to fit people or people to fit jobs . . . Industry must offer jobs to all comers, for if the day ever comes when jobs cannot be provided for all, then the future of both business and universities is in serious doubt.<sup>27</sup>

Dr. Kaltenborn should be aware that industry consistently declines to offer jobs to some graduates and offers jobs of limited challenge to many more, and that while in the majority of such cases the basic endowments of the concerned candidates are at fault, in some instance poor preparation by the college or poor operation of the placement bureau is responsible.

An article titled "Faults of Placement Services" (an informal survey conducted by the editor) appeared in the December 1953 issue of the *Journal of College Placement*. Com-

ments came (the editor indicated reluctantly) from recruiters. They were a varied group of recruiters—new men and old timers and men seeking specialists as well as those interested in non-technical men and even women. Criticisms were not of general conditions, but of rare or exceptional situations. Criticisms fell into six general groups as follows:

1. Faults in Scheduling: Too late or early interviewing; too many interviewees, scheduling multiple interviews, especially of diverse candidates; failure to notify recruiters of a too limited schedule; unreasonable restrictions on who may be interviewed or when; long gaps in the schedule; scheduling shorter interviews than requested; making no preparations at all; calendar for interviewing not available soon enough.

2. Alumni Placement: Inadequate or casual; not segregated from senior placement; records not maintained.

3. Records—Advance Preparation—Company Literature: Student records incomplete or unavailable; data forms confusing, or non-standard; company forms not completed; company literature unavailable to students; placement director unfamiliar with company requirements.

4. Relations with Faculty and Institution in General: Poor arrangements to meet faculty; faculty comments on students unreliable; placement service not available to all students at all colleges; no centralization of placement function; announcements of visits not fully communicated; placement function viewed as "red-headed stepchild" by University administration; placement function not sold to faculty; poor communications—placement office to faculty.

5. Relations with Students: Poor or no vocational counseling; placement director has little personal knowledge of student; students not counseled on use of company expense account for plant visits; poor effort for group meetings.

# Careers Unlimited

Insurance is America's largest enterprise; but the chances are that if you are taking a liberal arts program, you haven't given too much thought to a career in this field. If you are majoring in a business course, you have, perhaps, thought only of the sales possibilities insurance offers. There are varied opportunities in insurance calling for a wide range of talents and abilities. No matter what your field of study, you will find that insurance offers work that is important, stimulating, and rich in personal satisfaction.

Whatever can be said about the insurance business can be summed up in *The Travelers*, because *The Travelers* is one of the largest among the very few "multiple-line" insurance organizations and stands among the twenty-five largest corporate enterprises in the United States. Whereas some companies are engaged exclusively in Life insurance, and others concentrate on property lines, *The Travelers* insures both lives and property. Its policies cover individuals, businesses, homes and possessions, protecting them against loss through death, accident, fire, and many other perils. This breadth of operation means, of course, far wider horizons when it comes to choosing a career.



*Inquire: Mr. S. T. Tooker, Second Vice President, The Travelers, Hartford 15, Connecticut*

6. The Recruiter off duty:  
Recruiter ignored on campus;  
map of campus not furnished,  
etc.<sup>28</sup>

To conclude the chapter on "Typical Placement Facilities at University and College Campuses and the Adequacy of Their Operation," it seems suitable to quote from the excellent report, "Recruiting and Placing College Graduates in Business," prepared by the Policyholders Service Bureau of the Metropolitan Life Insurance Company. Part of the section "College Viewpoint and Facilities" reads as follows:<sup>29</sup>

#### **Positive Values Stressed**

Student placement and vocational guidance are usually handled as an independent administrative service. As a rule, particularly in the larger universities, the services are conducted by a director assisted by several full-time employees and are often reinforced by part-time student help. The organizational unit may be called by any of several titles, such as: Placement or Employment Bureau, Office, or Service; Bureau of Personnel Services; or Vocational Guidance and Placement Service.

Many colleges revealed that the most effective means of encouraging company recruiting is to provide an efficient, business-like service, tailored to the particular needs of each company. Such service may include a pre-screening of undergraduates according to job specifications; the scheduling of group and individual interviews, together with necessary facilities; complete student personal data files; a transcript of scholastic records; and faculty contacts. Such services result in building lasting, profitable placement relations with the business world.

In addition, the college placement directors bring their services to the attention of prospective employers. Notices are sent out regularly, in some cases to as many as 1,000 companies;

they include pertinent information on the graduating class, the number of candidates for various degrees, holiday and examination schedules, and suggested campus recruiting dates. In some cases personal-data sheets are sent out. One school reported sending more than 10,000 of these sheets in one year. Another university is considering the regular publication of a senior directory complete with personal resumes and pictures. These directories would be sent to all prospective employers well in advance of graduation. Alumni publication and mailing lists are frequently used to good advantage in promoting the placement service.

Another form of promotion mentioned by some college placement directors is talks at trade associations, chambers of commerce, or similar businessmen's meetings. Relationships are solidly established through prudent, regular, personal visits in industry.

In the regular conduct of their work, faculty members frequently establish contacts with business and industrial leaders. Such relationships can often be used to develop placement opportunities to the mutual advantage of all concerned . . .

To focus attention on the most suitable candidates for each position, the college placement director must have, first, detailed job specifications and, second, accurate, up-to-date personnel files on the undergraduates. The first essential can only be supplied by the prospective employer. On the other hand the value of the student personnel files will depend largely on the efforts of the college placement director.

While a certain amount of pre-screening work on the part of the college authorities is helpful and desirable, there is a tendency not to restrict interviews. Both college and company placement executives agree that, as far as practicable, all interested candidates should be

given an opportunity to speak with the company representatives.

Even when detailed job specifications enable intelligent pre-selection, the placement directors in many schools make a point of encouraging the companies to see other interested candidates. Ideally, if the students are well informed vocation-wise, the most promising candidates will come forward in accordance with the job opportunity. Under such conditions it is essential that full details on the position be given publicity throughout the campus, particularly in the college departments most likely to be concerned. This publicity should include more than a bulletin-board posting of job notices, which in itself is not highly regarded.

One Eastern university, in discussing the problem of presenting the best candidates, outlined the following procedure: Each year the placement service makes a complete inventory of the graduating class. This includes personal data and an analysis of interests, aptitudes, and general all-round employability. The service further attempts to rate the individuals according to personality, intelligence, and vocational maturity. These ratings are supported by faculty recommendations, academic records, and curricular activities. Thus, once the service is supplied with position requirements, its accumulated reservoir of information is used to pick out the most likely candidates. All borderline cases and others who are interested in a position are given an opportunity to see the company representatives.

The majority of the more-active college placement officers make every effort to have their senior student personal files ready for presentation nine months prior to graduation. These files are kept up to date, however, throughout the remainder of the senior year.



**To help them plan their futures**

Placement authorities and technical graduates will find much that is helpful in a new Phillips Petroleum Company booklet describing careers in the petroleum industry—and especially, careers in the rapidly expanding petrochemical field. This booklet will aid in evaluating career opportunities in this "industry of the future."

Phillips is engaged in exploration, production, manufacturing and distribution of petroleum and its hundreds of products. As a leader in petrochemicals, Phillips has major interests in plastics, synthetic rubber, carbon black, chemical fertilizers, rocket fuels and special chemicals. The company is also active in the field of atomic energy and operates one of the government's major reactor installations. Phillips encourages the technical graduate to choose a career in the field that interests him most. Phillips policy of promotion from within offers exceptional opportunities for future advancement.

The cooperation of college placement authorities with Phillips representatives has proved of great benefit to the Company and to the many graduates who are making careers with Phillips.

**PHILLIPS PETROLEUM COMPANY**  
Bartlesville, Oklahoma



- |  |   |
|--|---|
| <p>D. R. McKeithan<br/>       Technical Employment Consultant<br/>       Phillips Petroleum Company<br/>       Bartlesville, Oklahoma</p> <p>Please send me your new booklet, "Career with a Future."</p> <p>NAME.....</p> <p>NUMBER and STREET.....</p> <p>CITY..... STATE.....</p> |  |
|--|---|

Registration in college placement bureaus is on a voluntary basis. Consequently, the service must be "sold" to the student body. Practically speaking, the most effective approach to this problem is through the self-interest appeal that is, from the viewpoint of the student's future progress, prestige, and welfare. Thus, sound vocational guidance, coupled with the prospect of advantageous placement on graduation, is a potent inducement to whole-hearted student cooperation.

## Chapter 3

### *Typical Company Procedures in Collegiate Recruitment*

Just as placement office operation is often characterized by dubious procedures and techniques, so the approach of the corporation or other hiring organization to the recruitment problem may be ill considered in some or many of its aspects. Accordingly, this section of the study will contain certain suggestions for the improvement of campus-industry relations and for making recruitment generally more effective.

Normal factors in selection of the college seniors are (1) the interview, (2) psychological testing, and (3) investigation of the candidate's home situation, school work, history, and military record. All three elements are discussed in Chapter III, with the greatest attention being devoted to the interview, which is regarded as a prime selection device.

#### I. STEPS TO IMPROVE CAMPUS-INDUSTRY RELATIONS

In the Metropolitan Life Insurance Company study mentioned earlier certain "Steps to Improve Campus-Industry Relations" are suggested:

College authorities were in general agreement that business leaders are making substantial progress in improving their campus relations. However, a few suggestions were offered. They were:

Too advanced inquiries on seniors available for placement are not practical. Four to five months prior to the graduation date is considered the earliest time advisable for initiating these inquiries.

All recruiting inquiries should be sent direct to the college placement office, where they can be given specialized attention. The practice of directly approaching deans, professors, and others concerned with academic student activities is frowned on so far as placement matters are concerned. Such inquiries invariably end up in the college placement office, not without the loss of considerable time.

Job descriptions and position requirements should be more detailed and explicit. They should include realistic information on salaries, training and apprenticeship programs, and advancement opportunities.

Companies should furnish the college placement officers with complete descriptions of all the jobs for which they expect to interview while on the campus. Several colleges stated that every year some company representatives attempt to fill positions not previously mentioned in any correspondence. Under such conditions, without interview schedules established, it is difficult to provide efficient placement service to the company.

During the interviewing process and subsequent follow-ups, industry is encouraged to be frank with the candidates, particularly as to their chances of employment. Ending the interview with the noncommittal remark, "We'll let you know," leaves the candidate in midair. It is so much better to specify a time limit such as, "You will hear from us in a week." If the first interview definitely indicates no further consideration will be given, the student should be told. With such information, the student's relations with other company recruiters can be guided. At the

same time companies are also encouraged to keep the placement office informed on the status of the candidates interviewed.

Most schools prefer that the group interviews be scheduled after class hours if possible. In that way the regular academic work on the campus is not disrupted. The individual interviews scheduled during the daytime do not cut too seriously into the classroom procedure.

Several colleges suggested that many firms would be well advised to send more impressive recruiters, such as executives with poise and personality. The higher the recruiter's position in the corporation, the more impressed are the students. The recruiter is looked upon by the student body as exemplifying that particular company. They advise companies not to use "high-pressure salesmen" for this purpose.

Finally, a number of the college placement officers expressed the opinion that much constructive work could be accomplished through more frequent visits to industry. Toward this end, it is proposed that industry consider inviting placement officers at regular intervals to visit their plants and offices, to see first hand how new college-graduate employees are trained and introduced to the business world. Such liaison should facilitate a better mutual understanding and appreciation of each other's problems.<sup>30</sup>

#### **Recruiting Called An Art**

The students who studied the problems of campus job interviewing at Cornell are both fair and incisive, I believe, in their evaluation of some of the foibles of recruiters. In introducing their findings this group makes these general statements:

Campus job interviewing is an art, an art by the prospective employer of putting the student at his ease, of discussing job and career opportunities, of "sizing the boy up" as a potential employee. For the future employee

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CAREER BROCHURE  
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suggestions offered in Placement Association  
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it is the dual art of investigating the company and the job it offers and of selling himself. Two strangers practice the art of stating and asking, of talking and listening, of impressing and being impressed. Such interviews are important—both in terms of successful selection and placement for the company, and in terms of a future career and happiness for the student.<sup>31</sup>

#### Interviewers Unprepared

This valuable study proceeds to inquire, "Were the interviewers prepared?" The answer is essentially negative; 94 per cent of the students had completed a company or a Cornell application blank prior to the interview, but only 28 per cent of the students felt the company representative had read this blank. Thus, the student report infers, since the student is a stranger at the outset of the interview, the recruiter is forced to spend the first few valuable minutes of the 20 minute meeting hastily scanning the previously submitted material. This, inescapably, it is pointed out, leaves a poor impression with the student who has spent hours in preparation for the meeting. Rapport may be forfeited. The problem of the itinerant interviewer is acknowledged by the student researchers, however. They recognize that he normally completes his interviews at one campus at night of one day, only to undertake another series at a distant college early the following morning.

Concerning the interview itself, many volumes might be written, and in the next chapter of this study a suggested approach to an effective interview will be outlined. But some of the defections noted by the Cornell students and by other observers may well be indicated here.

The students inquired into the conduct of the interview. How was it conducted? To what extent was it planned? Was it interviewer or student dominated? Did the student answer questions, contribute little; was it a mild inquisition, or

was it a "spontaneous, natural, mutually participative discussion where the student was given full rein?"

The preference of 91 per cent of the interviewees was for single interviews (one recruiter interviewing one student) rather than a team meeting the student or a single firm representative undertaking a group interview.

The students at Cornell generally (92 per cent) felt that the recruiters tried to put them at ease at the outset of the meeting, but the sense of ease fell off as the interview progressed. Only 20 per cent considered themselves at ease most of the time. Note-taking by the interviewer is conceded to make the interviewee ill at ease, and a great majority of recruiters surveyed took no notes until the student had left the room. Most company scouts queried in this study said they made no conscious attempt to put the student under pressure by any techniques to judge his ability to think clearly under stress. Only 10 of 49 students felt they were under stress at all and only half of those said it was interviewer-induced.

Of the Cornell interviewers, 58 per cent said they followed some prearranged pattern as far as explanation of the company, discussion, questions, and answers et cetera, but essentially the objective was to "bring the boy out," hear his story, evaluate his initiative, "learn by listening." All of the company representatives indicated that they sought to evoke spontaneous conversation.

Company information was volunteered by 70 per cent of the interviewers, 59 per cent of whom said they wanted the student to do most of the talking, 39 per cent said they wanted to split the time 50-50. Some interviewers indicated that they found it difficult to evoke spontaneous conversation on the part of the student. Only 15 per cent of the students felt they had dominated the discussion.

Probably the disparities reflected above indicate that both parties

underestimate their degree of domination. As a matter of fact, a fair balance of domination can, perhaps, be inferred, and this is probably as it should be.

The desire for nondirected and spontaneous interchange suggests that there has not been a broad adoption of the McMurry-Dartnell type of "patterned interview" for campus purposes. This type calls for an extended question and answer approach with responses noted in writing as they are given. Even the sponsors of this technique do not recommend it for brief, preliminary screening sessions.

#### 20 Minute Interview Favored

At some colleges the length of the interview is inexorably fixed at 20 minutes, at some the firm representative's preference is respected, at a few the pressure of the schedule results in interviews timed at from ten minutes to an hour. A few schools follow a half-hour program. A majority of interviewers appear to favor 20 minutes, and this is the most usual schedule.

The tone and slant of the screening interview at the school are highly important if the mutual objectives of the parties are to be realized. Unfortunately, it is a not unusual occurrence for the industry representative to oversell his concern. It is the impression of this writer that this serious error is most often committed by less experienced interviewers and by line rather than staff recruiters. A sales manager—particularly a younger sales manager—is more likely to fail to fill in the less attractive aspects of employment in his company than an experienced personnel man. The latter is more likely to be conscious of the mutual costliness of bringing the wrong man to the company as a result of misrepresentation of any kind. The young sales executive may be carried away with enthusiasm when he encounters an appealing senior. He may overdraw the prospects for growth and hire the graduate only to lose him when the true picture eventually unfolds.

The Cornell study indicates a surprisingly small percentage of

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# Preview your career with a summer internship



*Dr. Finn Larsen, Director of  
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M.A., Physics, 1941, Drake;  
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Honeywell's program is geared to students one year from graduation in any branch of engineering, chemistry, mathematics, physics, business administration or accounting.

Assignments will be made in Design and Development, Industrial Engineering, Quality Control, Quality Analysis, Production Coordination, Personnel Administration, Financial Control, Marketing and Market Analysis.

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If you are enrolled in this program you will work at Honeywell from mid June to early September, approximately 12 weeks. Included in the weekly schedule will be discussions and meetings, as well as practical work assignments.

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In order to give maximum benefit to the members of this program, Honeywell must limit the number enrolled. If you wish to apply for an assignment, send your name, address, school, the course in which you are enrolled, plus the number of years completed to:

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Director, Industry Education Relations  
Minneapolis-Honeywell Regulator Company  
Dept. TC34A  
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company representatives overselling. This could be explained in part by the fact that most of the scouts concerned in the Ithaca study were seasoned recruiters and had been on the job long enough to be impressed with the long-range expense of overdrawing the advantages of the careers they were describing. The study showed that 27 per cent of the students thought the company was undersold, 69 per cent properly sold, and 40 per cent oversold. It is well that the students appear not to have any sense of pressure salesmanship, for such a tone would be notably out of place in collegiate recruitment. The representative should describe his concern's history, growth and potential, sketch career opportunities, and perhaps dwell on the security which can be looked for; but even when the student supply (as is currently the case) is disproportionately small as compared with the industry need, the wiser course surely is to underdraw the attractiveness of the opportunities tendered.

#### Student Reaction Reported

The most important criteria of recruitment success are the effectiveness and permanence of the men hired. This over a period is measurable, and will be discussed in the last chapter. However, while we are considering the errors that can enter the interview situation, it is interesting to glean the student reaction to the campus interview.

Is it a mistake for the company representative to bring up the subject of salary? Apparently most firms do not think so. Other surveys support the New York figures that about two thirds of the interviewers include salary discussion and that in two thirds of the cases the company man took the initiative in bringing it up. Seventy-six per cent of these mentioned a dollar figure. Only 15 per cent of the job seekers were asked to indicate what salary they sought.

The writer over a period of years has been informally gathering stu-

dent impressions in an effort to slant his own "pitch" more suitably. The Cornell survey inquired on the same question and supports the point that two thirds of the students were favorably impressed with their interviewers. This was essentially my appraisal of the situation.

Students particularly appreciate the interest of the interviewer in putting them at ease—in minimizing tension. The kind of comments of those who reacted negatively is important, however, even if not valid. The fact that even a few students reacted adversely suggests considering the nature of the adverse impressions. The expressions at Cornell involved, "lack of knowledge of the company, artificial familiarity, too much questioning about data contained in submitted application and too much pressure." Other comment included "careless presentation" and "aimless interview."

Neophyte interviewers and "old school" interviewers both often are deluded by two fallacies. One is that the student alone and not the company is "on trial." The other is that, if early in the interview it appears that the student holds no interest for the concern, the interviewer has no further interest or responsibility. The fact with respect to the first point, particularly in the present market for college graduates when the better graduates are getting ten and more offers apiece, is that the company, even more than the student, *must* be sold. As for the second, every professional recruiter recognizes that company public relations and college relations make it obligatory for him to spend a gracious twenty minutes with even the most impossible applicant. If his own company is "out," he can, perhaps, offer valuable counsel as to the best area of application or the best course of action for the unappealing candidate.

One of the authorities of the country on the conduct of an interview is Mr. Paul W. Boynton, Supervisor of Employment, Socony Vacuum Oil Company, Inc., New

York. He is a "dean" in the field of college recruitment and has published much material on interviewing on campus. In his article in May, 1954, in the *Journal of College Placement*, Boynton says:

... an overwhelmingly large proportion of interviews are still inept and blundering. They result in antagonism, frustration, and the gathering of a hopeless lot of misinformation.

He points out that practice in such interviewing may not improve techniques, but will serve to perfect blunders.

Boynton urges that his definition of the interview be kept in mind:

A free exchange of information based on good will and predicated on a desire to find the person best suited for the particular job.

#### Identifies Interview Types

This authority identifies types of interviews as follows:

**Cursory:** Resulting in humiliation and a sense of futility for the interviewee.

**Standardized:** Overlooks the fact that the person interviewed is an individual, takes no account of special situations, is based on the absurd premise that all people react in the same way.

**Chatty:** A pleasant conversation in which the interviewer lets himself go and has a grand time discussing enjoyable topics. If undirected, it will not gather needed information.

**Taciturn:** The silent interviewer takes the attitude, you're here to get a job, so convince me. A picture of the men interviewed is not likely to emerge.

**Third Degree:** Candidate faced with a strong light and trick questions is antagonized and does not exhibit himself.

**Competent:** Takes form of conversation not questionnaire. Conversation is tactfully directed.

Boynton outlines the procedure for a competent interview. He suggests three steps:

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Positions are open for accountants . . . administrative internes . . . chemists . . . engineers (civil, electrical, mechanical) . . . librarians . . . management trainees . . . recreation leaders (education or physical ed majors) . . . and statisticians.

A masters degree in public administration or political science is required for administrative internes who undergo a "rotating assignment" training period of 12 to 18 months for high level administrative posts. Internes work in the City Managing Director's office.

Any degree is acceptable for management trainees. After a 12-month period of "personalized" training and experience, management trainees can advance to a variety of administrative and technical posts. Aid toward graduate school work is offered.

Appointments are based solely on competitive Civil Service examinations . . . all Civil Service benefits apply . . . promotions are from within.

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For more information, contact your college placement officer . . . meet with our campus representative . . . or write to:

**CITY OF PHILADELPHIA  
PERSONNEL DEPARTMENT  
ROOM 127 - CITY HALL  
PHILADELPHIA 7, PA.**

1. Put applicant at ease so he'll talk freely.
2. Direct conversation with goal of getting key to man's interests and personality and discovering his qualifications for a particular assignment.
3. Guide discussion by intelligently phrased questions to elicit the "heart of the truth" without being leading, misleading, or confusing.

#### **Additional Tips Listed**

Further tips from this qualified specialist include these:

Be friendly but not unduly hearty, pleasant but not effusive.

Give the nervous interviewee a chance to compose himself by some device.

Try to establish rapport through some mutuality.

Observe the student's reactions, responses, interest, intelligence, attitude.

Develop something about his childhood as part of your directed conversation.

Build a "bridge of interests" to the candidate, but don't be concerned about the order in which you get your information.

Note his reactions to his former employers.

Constantly evaluate him and his experiences as they relate to your job.

Catch significant comments which may open new and very relevant fields for inquiry.

Do not write down the answers to any of your questions. (Not only will this disconcert the applicant, but it may misrepresent him since he may be nervous or have misunderstood you or you him.)

Analyze the phrasing of your questions. "Say what you mean and mean what you say."

Avoid negativism at the start of the interview by posing questions easy and pleasant to answer.

Find out how he got along on his last job. (Don't say "Why did you leave that job?" but, "Tell me, how did you feel about that job?")

#### **Avoid leading questions.**

Check his interest in your company by discovering (tactfully) to what other types of firms he has applied.

Watch out for bluffers. Check the continuity of his work record.

Get the complete picture. Remember you are not seeking information alone, but some sense of his whole personality and potential.<sup>34</sup>

Most organizations undertaking college recruitment prefer to follow a two or three step procedure in interviewing on campus: a group meeting with all of those who meet the specifications and will turn out to hear the general company story, the individual screening interview, and the more leisurely night or dinner meeting with the one, two, or three men (and wives or fiancees) who are most eligible and interesting.

Group meetings are feasible less and less often as the interview tempo picks up. They are generally more rare in larger universities. Small liberal arts colleges sometimes find an evening-before schedule at the college union a sound and useful tactic. At such gatherings, which often last forty to sixty minutes, the general background of the company, the scope of its needs for collegians, and their possibilities for growth are presented. General questions are encouraged. One important advantage of the group meetings is the fact that a much fuller exposition of the company can be provided. Moreover, the screening meeting can be expedited when the company story has already been told. Valuable time is preserved for the student's personal and special questions.

#### **II. TYPICAL COMPANY APPROACHES TO THE INTERVIEW**

Typical company approaches to the campus interview can be outlined as follows:<sup>35</sup>

By an Air-Conditioning Equipment Manufacturer.

1. In first part of 15-20 minute interview record preliminary personal data on candidate.

2. In balance of interview student is briefly told about company, training program, placement after training, and salary plan.

No commitments. Student advised he'll be told of decision later.

4. If candidate is promising, he is invited to return later in day for intelligence and aptitude tests.

5. Candidate completes certain self-administered tests and a "personal qualification record" and mails it to the company.

6. Interviewer decides on interest in further negotiations.

7. If interest remains, candidate is invited to home office for meetings with members of concerned divisions.

#### **Automobile Firm Reports**

By an Automobile Company.

1. Placement officers schedule appointments with qualified applicants only.

2. Approved applicants are "viewed" by:

- a. manager of salaried personnel department
- b. manager of training department
- c. Applicant Selection Committee.

By a Building-Products Company.

1. Group meeting on campus.

2. Interview one candidate per interviewing period per interviewer.

3. Join faculty for luncheon to discuss candidates interviewed, current recruiting activity, campus departmental changes, company and training developments.

4. Review of interviews, interviewer's notes, placement office and faculty comments.

5. Scheduling of further conferences with department deans and faculty representatives to further discuss specific candidates.

6. Final comments on interesting candidates recorded.

7. Applications left with place-

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Ski boots lace better, stay safety-tight. They do so because the rawhide leather has been made tougher, yet more pliant with a special oil perfected by Esso Research. The leather in the skier's boots, the wool in his socks—even the lacquer on his skis—were also made better with the help of products derived from oil. **ESSO RESEARCH** works wonders with oil.

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ment director for completion and forwarding.

8. Names of students tendered formal application recorded on master sheet.

9. At home office master sheets checked against returned applications. Those who failed to follow through are dropped from consideration.

10. Applications are sorted by departments and additional candidates are dropped from consideration.

11. Conferences are scheduled with department heads and candidates discussed. Further eliminations made.

12. Selected candidates are invited to home office at company expense for departmental interviews. (Candidates are employed for specific fields and not on a general basis.) (No one accepts West Coast applicants employed without home office visit.)

### Plan Three Interviews

By a Business-Equipment Firm (Sales personnel).

1. Applicant must be interviewed at least three times (by branch manager, branch senior salesman, divisional manager or divisional instructor.)

2. Applicant advised of:

- a. starting salary
- b. possible additional earnings during training
- c. specific duties
- d. required attendance at weekly meetings
- e. possibility of night work
- f. collection responsibility
- g. installation responsibility

In the next chapter of this study a "model" approach is outlined. It is of interest to observe here, however, the sharp contrast between the limited approach indicated above and the much more considered and professional undertakings of the Building-Products Company. Actually the second step of the business-equipment organization, although considered comprehensive by the company, barely touches upon superficial data that

should be part of the interview information. Opportunities for growth, pension provisions, fringe benefits, types of career possibilities are all omitted from the discussion whereas these rather than the topics discussed should be featured.

By a Drug Manufacturer.

1. Interviewing schedules are usually arranged beforehand by the school placement bureaus. These schedules are prepared for the interviewer at 20 to 30 minute intervals with a 10 to 20 minute break every two hours. The interview is usually conducted in private, and we attempt to make it very informal. Informality tends to make the student feel at ease.

2. The interviewer keeps clearly in mind the qualifications for the job and uses a patterned interview, which permits him to explore all factors of the applicant's background. Factors such as appearance, personality, initiative, self-reliance, social elasticity, tact, poise, and so on can be partially determined from conversation and the application forms. These factors are part of a deeper and wider personality structure, and in essence, an applicant having all of these factors is basically a well-rounded individual.

By a Feed-Products Company.

1. A general meeting of all applicants is held the first day of the visit to the campus. This meeting is conducted by the general personnel director and the divisional sales manager in whose area the school is located. Charts and other material are used to fully explain the job of a district salesman. No attempt is made to glamorize the job, and all the rigors of a salesman's life are brought out, so that there will be no misunderstanding. Everything is covered in the group interview, which lasts about an hour. Then questions are answered from the floor. At the end of the meeting all men who feel they are interested and qualified are asked to sign up for

individual interviews the next day.

2. The individual interviews the following day are held at 20 minute intervals with the sales manager and personnel director working together. The discussion is quite frank, and if it is thought that an applicant is not material for our sales force he is rejected tactfully on the spot. Those candidates who appear to meet our requirements are given an envelope of material. This envelope contains:

- a. A form letter explaining how to complete the enclosed material and what disposition to make of it.
- b. A sales application blank.
- c. A strong "Vocational Interest Blank."
- d. A Bernreuter "Personality Inventory."

### Tests Are Explained

3. Each man given the material is told that his responses to the questions asked are compared with those of successful salesmen. If his background, experience, personality, and interests are similar to these of our successful men, we will be interested in considering him further. If he is not similar, or only partially so, he is sent a letter of rejection. Also after the interview the sales-applicant interview record is completed. This is important in that impressions after an interview are easily forgotten.

4. The analysis of the material is handled by our sales analysis department. Since this group has no personal contact with the applicant, all personal bias is completely eliminated.

5. Successful candidates are then invited to spend some time in a divisional sales office and with a district salesman. If the consensus of opinion is still favorable, a further interview is held with the applicant's wife. We feel that it is extremely important for the wife to understand thoroughly the position her husband will be accepting, since his

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## We Have

This ad is directed to the graduate who *doesn't* want to be just another engineer.

It is pointed toward the man who thinks as we do . . . that our field of electronic research is virtually unlimited, and that we accept the challenge to lead the way in exploring its many unknown facets.

Our idealism has served us well. It has been the driving force behind our spectacular growth in such diversified fields as: automation . . . airborne fire control systems . . . missile systems analog computers . . . radar beacons . . . magnetic amplifiers . . . electronics . . . servo-mechanisms.

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DIVISION  
**ACF Industries, Inc.**

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success or failure, in a large measure, depends upon her attitude.

6. During the process, if it appears the applicant has a good chance to be considered for the job, references are checked and a personal-history summary completed by an outside agency specializing in this.

7. Finally, if everything indicates the applicant would make a good salesman, he is hired. The divisional sales manager makes the final job offer.

### Detail of Record Is Varied

By a Photographic-Equipment Manufacturer.

1. Prior to an interview each applicant is requested to complete a preliminary application form. Interviews are always granted to those who call at the office, although it is not always possible to schedule interviews for all who desire them on the college campuses. After the interview the interviewer completes an interview classification record for each individual, and this record becomes an important part of our file.

2. In some cases the applicant is requested to provide a more detailed record of his qualifications and experience if a serious employment interest in the applicant is anticipated. This more-detailed form is our personal qualification record. No psychological or other special tests are used at any time during the interview or selection procedure for the particular group of personnel under discussion. Interviews are normally 20 to 30 minutes in duration, during which time we attempt to discuss with the applicant his various interests and aptitudes and other information which will acquaint the individual with our company and determine generally his suitability for employment.

3. The information and applications resulting from our interviews are carefully reviewed and classified, and the application

forms are kept available for active consideration as definite openings develop or are anticipated. The records of possible candidates are referred to and discussed with those departments which have an interest in additional personnel, and usually two or three applicants are selected to receive invitations to visit our plants for further interviews.

(To be continued in next issue)

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ESTIMATED TO DOUBLE ITS ASSETS IN NEXT THREE YEARS

**I**t is hard y necessary to discuss the details of the manpower shortage, other than to refer to it briefly, in pointing up the core problem of a salary program for trainees.

Two related facts, however, are of significance in reaching an understanding of the macro-picture.

First, a labor shortage in crucial occupations such as scientist and engineer, toolmaker and machinist, has persisted for the better part of the last fifteen years, and this promises to continue for the next decade with shortages developing in additional occupations. Population experts forecast over the next ten years a population increase of 20%, but an increase in the population of working age of only 10%.

Second, not only is our total population—and hence the total number of consumers—increasing, but the per capita consumption of goods and services is also increasing at a rapid rate. In ten years we will have more people, each one of whom will on the average require—will demand more goods and services than he demands today.

This increased demand for goods and services by a population expanding twice as fast as the workforce brings on two important results: (1) an increase in competition for the individual members and potential members of the workforce with a consequent upward pressure on wages and salaries, and (2) an increase in the rate of technological change resulting in part from higher labor costs and in part from the desire of entrepreneurs to meet quickly

the market demand for goods and services. Complicating the picture at all levels of the workforce is a change in the nature of technological development, which is requiring greater emphasis on the science of technology as contrasted with the art of technology. This is increasing the educational requirement and the nature of education itself—particularly in the engineering, accounting, and management

#### *Administering—*

## **THE Salary Program FOR CORPORATE TRAINEES**

fields—thus increasing the shortage of people in these fields.

Some notion of the impact of rapid economic growth in the economy and the accompanying technological expansion on wages and salaries can be gained by examining trends over the last fifteen years. During the period 1940-1954 the real income before taxes of beginning college graduates has increased 35%. A proper perspective in viewing this figure is gained by comparing this 35% gain with a 48% increase in real income for industrial workers and an 80% gain for physicians. This is a demonstration of the effect of supply and demand in a period of short labor supply. Not all groups have fared in this way, however.

In our company—which is fairly representative of the steel industry—starting rates for college graduates in the Inland

By

**Frank H. Cassell**

*Manager of Industrial Relations,  
The Inland Steel Company*

*From a steel executive who has had to live with the problem come some down-to-earth suggestions on coping with competition, differentials, and salary surveys in establishing a reasonable and workable rate.*

Training Group have increased from \$125 per month in 1938 to \$405 per month in 1955, or an increase of 224%. Again, to keep this picture in perspective, this increase compares with an increase in the common steel labor starting rate from 63¢ an hour to \$1.75 an hour, or an increase of 174%. Taking into account the effect of money inflation, in terms of 1947-49 prices college graduate rates increased by about 110% and hourly worker starting rates increased by 87%.

#### **Equity Has Been Maintained**

Over the last 15 years, therefore, while the increase in starting salaries for college graduates has generally not quite kept pace with the increase paid to factory workers, it has been possible to maintain equity, or a little better, in starting rates at least in our company.

This should be enough to demonstrate that provision must be made to reflect quickly and accurately in the salary structure changes in labor market conditions.

If I could state a principle, it would be that starting salaries for college graduates should be set to attract that quantity and quality required in the business. An intelligent decision in this regard requires some sort of periodic salary survey to determine what other employers are offering for comparable types of graduates. No longer is an area survey adequate, nor in most instances is an industry survey adequate. Your labor market is the United States, and therefore, that is the area you must survey.

Nor is a simple salary survey adequate. As a matter of cost to the company and as a matter of attraction to the prospective employee, the various benefits such as pensions, insurances, stock options, and the like should be a part of any such survey.

These indirect wage items are becoming more important as the percentage of benefits to salary increases which is a clearly evident trend.

A company which can offer to the graduate substantial benefits, and more importantly, fairly clearly defined lines of promotion and early opportunity for advancement, may find itself able to pay a starting rate that is \$10 to \$20 a month less than the market—but if you are \$50 a month short, your quote will probably be looked upon as unattractive.

Make no mistake, money is an important factor in attracting the *more able college graduates*. These people, however, are more likely than most other people to relate the salary offer to the company environment. This is especially true of those with creative talents who are likely to place greater emphasis on a permissive managerial climate, freedom of thought and experimentation, freedom from regimentation, and opportunity for personal growth than on a salary offer which is perhaps above the market rate.

An important aspect of college graduate salary administration is the establishment of differentials for various college degrees.

It is common for companies to pay a higher starting rate for advanced degrees than for a Bachelor's Degree. Recent surveys show that a graduate with a Master's Degree will receive from \$25 to \$50 per month more than a Bachelor's degree with an average differential of about \$40 per month. The graduate with a Ph.D. degree will receive anywhere from \$100 to \$200 per month more than the man with a B.S. degree. In this case, however, the amount of differential depends to some extent on the field. Technical graduates with the Ph.D. degree are much sought after and may receive \$600 per month or more depending upon the quality of the man.

This reflects both higher job requirements and scarcity of people with advanced degrees.

Differentials as between fields of specialization have developed again according to relative need and scarcity. Technical graduates are in shortest supply compared with the demand, and as a result they command the highest starting salaries. During the past several years, engineers and physical scientists have averaged from \$25 to \$50 per month more than liberal arts and business graduates. Another group in increasing short supply is accountants. As a result, the starting salaries for men with accounting major is, on the average, somewhat higher than the starting rate for other business graduates.

#### **Experience is Recognized**

Differentials which reflect the effect of experience and military service are increasingly used. Many companies have developed plans or formulae which enable an increase of starting salaries above base rate by giving college graduates an additional amount of money in recognition of some previous work experience or military service. This practice seems equitable if the previous experience or military experience is related to the new job assignment, but often such plans are used as a means of going above the established rate in order to hire a man they want to be sure to get. I have heard of companies giving extra salary for summer work experience of the type that almost every college student has had. It seems to me that a company that makes liberal use of such "additives" to boost their job offer from 10 to 25% is only kidding itself. They might as well raise their starting rate and be done with it.

An additional differential has recently developed to reflect the differences in ability between individuals with comparable ed-

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ucational background, or a comparable experience.

Most employers would obviously like to hire as many of the top quality graduates as possible. Consequently, competition for outstanding men is especially keen. When such men come along, personnel men will sometimes disregard their established salary schedules and offer whatever they think is necessary to hire the man. This is one of the reasons why surveys of starting salaries in any given year which are conducted in the fall or early spring usually average about \$10 per month less than actual salaries paid for that year. This has been pointed out by Dr. Endicott in his fine series of Annual Surveys of Trends in Recruiting of College Graduates.

#### Cites Inland Experience

In practice, how are these divergent and sometimes conflicting factors reconciled into an intelligible salary administration plan. Permit me to relate our experience and practice.

Our goal is to establish starting rates at a level to attract the quantity and quality of college men we need, while at the same time avoiding excessively high rates that will contribute to the upward trend and create internal salary problems. We take into consideration all the factors mentioned earlier and try to arrive at a schedule that is competitive.

Steps in establishing Inland starting rates include:

1. Systematic and periodic salary surveys to see what the competition is planning to offer.
2. Determination of the effect of the past year's general increases on starting rates and rate ranges.
3. Ascertain differentials between degrees and between fields. We know we will have to offer a higher rate for technical graduates than we will for liberal arts graduates.

4. Compare starting rates with present salaries of college men hired a year earlier. We would rather be low in starting rates than bring in new men at the same level as men with experience. If it is necessary to have a starting rate that is high or higher than the present salary of experienced college graduates, it means that we must take steps to adjust our present

We have three alternatives:

- (a) Set up a dual rate structure for the Training Group.
- (b) Establish a rate at the level required to meet the engineer competition.
- (c) Establish a rate intermediate between the engineer and non-engineer rates. In such a case we are a little high for liberal arts graduates and somewhat low for engineers.

We have decided on the latter course, since the Management Trainees are a close-knit group who go through their one-year training together. We feel that this program is attractive enough in and of itself to enable us to hire good engineers who are more interested in long-run opportunities than the immediate salary. There is some question in my mind whether a man who will turn down our job offer for another \$10 to \$20 per month was really sold on our company in the first place.

#### Some Assure Increases

Many companies have plans that assure the beginning level college graduate regular increases during the first two years. Some of these plans provide for automatic increases as long as the employee remains on the payroll, while others include some element of merit.

Although many such plans cover two years or more, a survey by the National Industrial Conference Board indicates that the most common practice (36% of companies surveyed) is to limit the period to one year. Afterwards the recruits are on their own and their progress is dependent upon their individual efforts. Such plans have one distinct advantage. They insure that college graduates with one or two years' experience stay above the rapidly rising starting rates of inexperienced graduates.

Some companies prefer to put new college graduates on a merit basis right from the start and

employees upward to a more realistic level. This is usually accomplished via the merit route.

5. Problem of establishing a starting rate for our management training program which includes men with degrees in liberal arts, business, and engineering. Since there is a persistent and growing difference between the asking rates for engineers and non-engineers, what rate should we use for this trainee group?



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to fit them into their regular salary review program. This procedure may be satisfactory as long as the company has periodic merit reviews and has a liberal merit budget so that competent college graduates can progress in salary at a rate that is in keeping with nationwide trends. If a good man does not feel that he is making progress, he will look elsewhere. In cases where recent college graduates are placed on a strictly merit system, they are also eligible for promotional increases as they move up to higher level positions. In a company that is expanding, a particularly capable recent graduate can move up in salary very rapidly if he is able to receive several promotions.

#### **Initial Range is Narrow**

During the first few years, usually there is very little spread in salary between the above-average and below-average college graduate. Whether a company is on an automatic plan or a merit program, the salaries of college graduates in the same field stay pretty close for two or three years.

By five years after graduation, salaries begin to spread out depending upon merit and job assignment. The above average men will begin to pull away from the average and below average college graduates. Surveys show that at the end of ten years after graduation, there may be as much as \$200 to \$400 per month difference in salary of men who received their degree in the same year.

A survey by the National Industrial Conference Board shows that at five years after graduation, the engineers still have the highest average salary, but their lead is challenged by men in the sales field. The group that is lowest at the end of five years is accountants, even though starting rates for accountants are somewhat higher than of business and liberal arts grad-

uates. This may be one of the reasons why so many men trained in accountancy are leaving that field for positions in general business and sales.

Administering salaries of professional personnel requires per-

#### **A MATTER OF RECOGNITION**

Because of the welter of organizations active in the field of college placement and recruitment, it is becoming increasingly important to recognize the one official, non-profit organization representing college placement officers and the recruiters.

It is the COLLEGE PLACEMENT PUBLICATIONS COUNCIL, INC., known by its seal and the initials CPP which appear on this JOURNAL, the stationery of the Council and will appear on the new annual occupational directory to be known as The College Placement ANNUAL.

The adoption of a common constitution for the Council by the Regional Associations (ratified by the seven which have held their conferences) is the final step in establishing a unity of purpose in support of the objectives of the Council.

To be sure of the endorsement of questionnaires, communications, and new projects in the placement field, look for the CPP seal.

iodic reviews of each man's development to insure that his salary keeps pace with his professional growth. This type of review should occur at least once a year, and preferably twice a year.

In determining whether your company's salary schedule for professional personnel is adequate to attract and hold a competent staff, it is necessary to make periodic salary surveys and to keep abreast of salary

trends. In this period of active competition for professional and managerial talent, sizeable changes in rate structure can occur very rapidly. The company not aware of these changes and failing to make adjustments may lose some of their better men before they are forced to take action.

A good example of this is the rapid increase in technical salaries during the last six years (1950-1956). Not only did starting salaries rise about 50% during this period, salaries for experienced technical men also rose rapidly.

A salary administration program must be flexible enough to adjust to changes in the competitive situation. The salary schedule must be related to market conditions, rather than have it tied to some internal criterion which bears no relationship to the supply and demand situation.

#### **Inequities Should Be Avoided**

New employees should not be hired at rates above those paid to equally competent people currently on the payroll. If your current rate structure is not adequate to attract the people you need, then the rate structure should be reviewed and adjusted upward before bringing in new people at higher rates. There is nothing more devastating to employee morale than intra-company salary inequities that are known to those affected.

Salary considerations are only one of the incentives of interest to professional personnel. Other things they look for in a job are:

- (a) Opportunity for advancement.
- (b) Opportunity for professional and personal growth and professional recognition.
- (c) Opportunity to participate in professional meetings and to maintain professional contacts.
- (d) Good supervision.
- (e) Adequate employee benefits.

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## THEIR HIGHER EDUCATION

Continued from page fourteen

mention was made of activities such as offices held in social fraternities and professional organizations.

Respondents found it difficult to decide whether teaching personality or subject matter had been of more lasting influence. Subject matter was judged the most influential by a slight majority of both engineering and non-engineering personnel.

### High Percentage Earned Expenses

Approximately 90 per cent of the respondents earned some portion of their collegiate expenses; over two-thirds of these earned at least half. Just over a quarter signified that they received scholarship aid. With this personal background, the respondents were overwhelmingly in favor of students with financial problems earning their own way. Approximately one-fifth of the liberal-arts graduates and one-third of the engineers suggested that such students might borrow the needed funds, but well over half of these replies suggested that borrowing be combined with earning—with the borrowing kept to the barest minimum and the students earning as much as possible. Less than one-half of one per cent suggested that the student should drop out of college, and most of these said it should be the last desperate resort, and only for a period long enough to earn sufficient funds to return to college.

The general satisfaction of most alumni with their alma maters is dramatically indicated by the results of this study. Three-quarters of the liberal-arts graduates would choose the same college if they had the opportunity of college choice again. En-

gineers were even more satisfied, with almost 85 per cent indicating the same choice would be made again.

On the other hand, more dissatisfaction seemed evident with the course program selected by the non-engineering group. Only fifty-four per cent of this group would choose the same course of study again, whereas three-quarters of the engineers would follow substantially the same program pursued before. It is very evident that dissatisfaction with the college chosen arose primarily because of the impact of financial considerations on the selection process. Those who attended evening programs or colleges near home for living-cost reasons would probably not make the same selection if they could afford something else.

In general, the respondents seemed to value the broad liberal-arts background for personal and career development, with specialization, if essential, occurring at the graduate level. Any program of real benefit for industrial responsibility must include developing a high measure of communicative skill and human understanding.

### I. "What Areas of College Study Have Contributed Most to Your Present Position of Responsibility with the General Electric Company?"

In this question, the basic assumption is that the respondent has achieved some degree of permanence within the framework of the Company. Since he has had at least a year of service, his task is now sufficiently familiar for him to review the contributions of his collegiate background to his business efforts. Eco-

Even employees with 30 or more years of service found it possible, upon reflection, to pinpoint college courses that had marked value. A very few respondents, often secretarial, declined to answer this question, saying that the word "responsibility" did not apply to their positions. Also a few respondents indicated that all of their college courses provided a certain degree of assistance in making their careers possible.

The great majority of the Non-engineering Graduates reported the most helpful and valuable subject area was English communication. Both written and spoken English were cited as of extreme value in business success. This showed up in replies both from Technical and Non-technical Employees. Many went to some length to comment on the importance of an individual's ability to communicate easily and clearly. Engineering Graduates, on the other hand, put English second to Mathematics in importance. The inference is that both study areas tend to provide the communication skills so essential to modern business success.

### Other Areas Not Well Defined

The other most helpful and important subject-matter areas listed by the Non-engineering Graduates were not quite so clear-cut and well-defined. Technical employees signified that some form of business understanding was particularly helpful in adjusting to their present positions. Non-technical Employees indicated that both Economics and Mathematics were of equal importance. It is interesting to note that both Economics and Mathematics were listed as of great importance to a business career by many who chose to comment on specific course values. Economics appeared to be far and away the most valuable social science among the respondents. Eco-

nomics achieved third place in the replies of Technical Employees, while Mathematics tied with Accounting and Psychology for fourth place. Physics held fifth position.

Among Non-technical Employees, business courses and Accounting tied for third position, while Psychology and Physics were tied for fourth place.

Engineering Graduates, after classifying Mathematics and English as the two most important subjects, gave third position to the courses that produced their specific engineering skills. There was ample indication that this group feels that some knowledge of basic engineering is helpful as a part of the core of any collegiate academic program. Following these areas in importance, the Engineering Graduates listed Physics, Economics, and Chemistry, in that order.

The following table indicates the relative ranking of courses by both Engineering and Non-engineering Graduates.

#### Ranking of Courses Reported Most Valuable to Career:

##### Engineering Graduates

1. Mathematics
2. English
3. Engineering
4. Physics
5. Economics
6. Chemistry

##### Non-engineering Graduates

1. English
2. Economics
3. General Business
4. Mathematics
5. Psychology
6. Physics

Another indication of relative importance is the percentage of replies testifying that a subject area is of value:

Course Area	Per Cent of Replies	
	Engineering Graduates	Non-Engineering Graduates
1. English Communication	58.40	73.68
2. Economics	21.60	55.59
3. Mathematics	72.21	53.24
4. Business		43.67
5. Accounting		33.80
6. Psychology		25.55
7. Physics	55.21	25.00
8. Engineering	53.84	

#### II. "What Areas of College Study Have Contributed Least to Your Present Position of Responsibility with the General Electric Company?"

Extreme care must be taken in the interpretation of the replies to this question. It would be easy to assume that the results indicated a lack of value for many college study areas. This is not necessarily the case, since respondents often pointed out that their replies signified only a lack of direct contribution to their personal business career. In fact, many courses mentioned as lacking career value were

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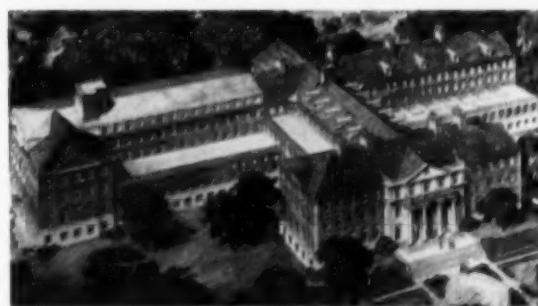
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reported by the same people as valuable for leisure-time pursuits. Some failed to answer this particular question because they felt that all courses taken had provided a certain benefit in their personal development.

#### **Non-Engineers Agreed**

There was, however, a great uniformity in the replies of Non-engineering Graduates to this question. Almost a standard pattern showed History, Foreign language, and Miscellaneous Sciences contributing least to a business career. The sciences most frequently mentioned as lacking in business value included Biology, Botany, Zoology, and Geology. Although History was indicated as of little value in business career development, other social sciences such as Government, Sociology, and Economics were often mentioned in that order. As might be anticipated, however, except in cases where foreign contact work is involved, the value of foreign languages was seriously questioned, although there was indication that languages do offer certain mental disciplinary benefits.

The same Non-engineering Graduates suggested that various business courses of a specialized nature had little career value, since the information contained in them could have been achieved in a much more practical fashion in the business world. Many indicated, too, that some specialized business courses taken in college had little connection with the type of business task encountered later in industry. This view was most often expressed by those who had technical responsibilities within the business organization.

There was little variation in the replies to this question by the Engineering Graduates. With the exception that their listing included Engineering and Chemistry and excluded Business and Accounting, the same general

thinking prevailed. Engineering Graduates appeared to be critical of engineering offerings in areas other than their personal interest and specialization. Some who were not using their engineering training in their immediate jobs were inclined to belittle the whole province of engineering as a career asset. Such a reaction might reasonably be expected and should develop no concern.

The comparative ranking of "least useful to a career" courses follows:

#### **Ranking of Courses Reported Least Valuable to Career:**

##### **Engineering Graduates**

1. Foreign Language
2. History
3. Engineering
4. Economics
5. Government
6. Chemistry
7. Literature
8. Mathematics } Tie
9. Miscellaneous Sciences

##### **Non-engineering Graduates**

1. Foreign Language
2. Miscellaneous Sciences
3. History
4. General Business
5. Accounting
6. Economics
7. Mathematics } Tie
8. Physics
9. Government

The least valuable courses for a career in business, listed as percentages of total replies mentioning a course, were as follows:

Course Area	Per Cent of Replies	
	Engineering Graduates	Non- Engineering Graduates
1. Miscellaneous Business	14.74	55.30
2. History	46.81	52.45
3. Language	59.84	52.24
4. Miscellaneous Science	12.11	48.15
5. Miscellaneous Humanities	1.99	22.09
6. Government	20.42	18.78
7. Chemistry	25.10	18.04
8. Physics	—	17.70
9. Engineering	45.16	—
10. Economics	23.32	—

#### **III. "What Areas of College Study Have Contributed Most to Your Use of Leisure Time?"**

In corporate personnel practice, there is increasing emphasis

upon the importance of employees' leisure-time activities. Such activities, when satisfying and rewarding, can frequently contribute to the development of better and more valuable employees. So it appeared desirable to evaluate the type of courses that have best served the college graduates in the development of their leisure-time pursuits.

Among Non-engineering Graduates, both Technical and Non-technical Employees indicated strongly that a variety of business courses, too numerous to specifically mention by name, contributed greatly to their non-vocational activities. Apparently college graduates within the Company have a lively interest in business activities not directly associated with their own work. In some instances, local government activity was cited as a leisure-time application of knowledge gained through business courses.

#### **Favored English Literature**

Both Technical and Non-technical Employees reported English Literature as a strong second contender for leisure time, contributing to the ability to relax and to develop non-business thinking. (The unsympathetic might equate these answers with a rationalization of "escape" reading!) Indications were also present that the type and quality of personal leisure reading were directly related to literature courses at college. It will be remembered that this area of study was mentioned with some frequency as one of the least valuable career courses.

Miscellaneous Sciences (Biology, Botany, and Geology) and History (specifically American and European) divided honors for third and fourth position. Technical Employees indicated History as third in value while Non-technical Employees offered Miscellaneous Science. Fourth position was the reverse for both

groups. Miscellaneous Humanities (including Arts, Music, and Religion) was in fifth place among Technical Employees, while Mathematics placed fifth with Non-technical Employees. Although not numerous enough for tabulation, frequent mention was made of courses in Religion, especially by Technical Employees. In general, then, these respondents tended to choose, for leisure and enjoyment, those subjects they did not get in college.

Again the replies from Engineering Graduates followed a strikingly similar pattern with largely identical courses listed, but with a somewhat different ranking. It was the expressed regret of many that academic time had not been available to develop possible leisure-time interests. Some suggested a longer academic program to provide such time.

#### Ranking of Courses Reported Most Valuable for Leisure Time:

##### Engineering Graduates

1. English Literature
2. Engineering
3. History
4. Economics
5. Physics
6. Mathematics } Tie
7. Philosophy

##### Non-engineering Graduates

1. General Business
2. English Literature
3. History
4. Science and Engineering } Tie
5. Mathematics
6. General Humanities } Tie
7. Economics
8. Physics } Tie
9. Philosophy

There was great enthusiasm in many of the replies for the liberal-arts curriculum for per-

sonal satisfaction outside the business office. Many respondents indicated that their enjoyment of life was directly traceable to a broad background of interest generated by the program of study in the liberal-arts college.

Upon the basis of percentage of total replies mentioning course areas as most rewarding for leisure-time pursuits, the following listing was obtained:

Course Area	Per Cent of Replies	
	Engineering Graduates	Non- Engineering Graduates
1. Miscellaneous Business		58.83
2. English Literature	66.43	49.43
3. History	37.05	38.82
4. Miscellaneous Science		37.18
5. Mathematics	22.16	30.17
6. Miscellaneous Humanities		27.08
7. Engineering	39.11	—
8. Philosophy	24.54	—
9. Physics	24.78	—
10. Economics	35.87	—

#### IV. "What Specific Areas of Study or Courses Would You Recommend Most Highly to a



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One of the remarkable features of the results of this tabulation was the relative equality of importance attached to each of the four broad areas of study.

Most Valuable Area of Study	Per Cent of Replies Mentioning Area	
	Engineering Graduates	Non- engineering Graduates
Science and Technical	34.52	26.00
Humanities	23.88	26.00
Social Science	21.17	25.00
Business	20.43	23.00

Thus, the obvious inference is that the composite General Electric college graduate is specifically in favor of a broad program of study encompassing some work in each of the above categories. The average pattern of response for Non-engineering Graduates (allowing each person three choices of course or sub-

ject-matter areas) was (1) English communication and expression, (2) Economics, and (3) Mathematics, Engineering, or Business.

Engineers, as might be expected, placed heavy emphasis upon their specialty but ranked English as the number one course, with Engineering, Economics, Business, and Mathematics respectively following in line. Several expressed caution, however, and said that engineering was their first choice *only* in the event that the student planned to enter a business similar to General Electric. Otherwise they would have placed English in first position.

Many comments from both groups pointed to the need for a balanced program of studies without undue specialization. Specialization, they held, should be

reserved for graduate training or for special educational courses offered by the industry in which the student accepts employment. Typical comments emphasized that the program should be broad, should teach mental discipline and the ability to think, and should allow the student to take "all available engineering courses that might be scheduled." This, of course, reflects the influence of engineering in the General Electric organizational structure.

The following table indicates the over-all percentage of respondents indicating the named course of study:

Course Area	Per Cent of Respondents Indicating Value	
	Engineering Graduates	Non- engineering Graduates
English Communication and Expression	75.81	62.96
Economics	68.84	55.27
Business Courses	61.52	41.64
Mathematics	25.72	36.23
Engineering	74.06	29.29
Psychology	17.46	25.06

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The comparative ranking chart follows:

#### Ranking of Courses Most Recommended for Management Responsibility

##### Engineering Graduates

1. English
2. Engineering
3. Economics
4. General Business
5. Mathematics

##### Non-engineering Graduates

1. English
2. Economics
3. General Business
4. Mathematics
5. Engineering and Science
6. Psychology
7. Humanities

There was little difference in the specific "most valuable" course recommendations of both Technical and Non-technical Employees in either of the groups surveyed. In fact, engineers of all classifications reported favorably on the same five course

areas listed above with relatively small differences in ranking. Such unanimity of opinion among more than 7000 widely scattered engineers appeared remarkable.

#### *V. "Do College Extra-curricular Activities Aid an Individual in Developing Himself for a Career?"*

Over 88 per cent of the liberal-arts respondents indicated one or more non-academic extra-curricular activities, and many listed three or more. Of this group, approximately one-third had engaged in some form of college sports or athletics, while the next most frequently activities were participation in social groups, professional associations, and student offices. The highest percentage of participation was reported by the Bachelors of Science; the lowest, among Business Administration degree holders.

Engineers, on the other hand, averaged an even higher percentage of participation with a re-

ported figure of 94.09 per cent. Chemical engineers averaged the highest per cent of participation and electrical engineers the lowest. Professional societies, athletics, and social fraternities were the three leading extra-curricular activities undertaken.

Approximately 71 per cent of the engineers who participated in such activities felt that they aided in career development. Explanatory statements in some cases illustrated the relationship of professional engineering societies with present memberships and, in fact, with jobs now being undertaken.

Two-thirds of the liberal-arts respondents likewise indicated that participation in extra-curricular activities was in some way helpful in shaping a career. Fraternity officership were frequently cited as good for business experience, while campus newspaper editorships were sometimes the forerunners of a

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writing career with the Company. Professional society affiliations ranked high as the most valuable general type of extracurricular activity for career development. This was followed rather closely by the potential personal self-development values of affiliation with social and fraternal groups. Business Administration degree holders indicated greatest preference for both social and professional affiliations, while Education degree recipients had least interest in the values received from extracurricular participation.

Many of those from both groups who reported no extracurricular activity stated that their non-participation was not due to lack of interest, but to other personal reasons, such as:

1. Pressure of finances causing a heavy workload to be undertaken.
2. Marriage and resultant responsibilities;

3. Full-time day employment necessitating college attendance at night.

#### *VII. "Are College Values More Lasting in Influence Because of Subject Matter or Teaching Personality?"*

Whether college graduates feel that teaching personalities were more or less important than subject matter in the values received from their educational experience has been a matter of conjecture for many years among college personnel. It is, of course, of some value in determining the type of educational support that should be offered to higher education.

Engineering graduates were apparently more influenced by subject matter than by teaching personality. Every sub-group with the exception of Chemical Engineers on non-technical jobs placed subject matter first. On the average, 48.84 per cent of all engineers rated subject matter

first; 45.28 per cent ranked teaching personalities as more important; and 5.87 per cent reported either "both" or "undecided."

Liberal-arts answers to the question are certainly not indicative of any decisive trend in either direction. Of this group, 48.94 per cent considered teaching personalities more important in evaluating their college years; a slight majority, 51.06 per cent, indicated that subject matter had been more valuable. Several respondents gave either an equal weight to the two factors or else commented that the question was too difficult for an accurate answer.

#### *VIII. Recommendations for Educational Financing When Family Resources Are Limited.*

The answers to questions on this involved subject appear to be closely related to the personal character and early financial position of the respondents. In

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general, college graduates in the General Electric Company are strong believers in individual initiative and personal effort in financing education.

The personal history and character of the college graduates are disclosed by:

1. The number who earned part or all of their college expenses;
2. The number who had some form of scholarship aid (excluding federal assistance under the G.I. Bill);
3. The general feeling that a student should continue college education by bending every personal effort to achieve this goal.

Nine out of every ten degree holders earned some portion of their academic expenses; six out of ten indicated that they earned half or more of these costs. The answers were validated, more-

over, by statements of the type of work performed. This ranged from dishwashing, waiting on tables, and correcting papers to full-time factory or industrial employment. Many of those reporting no earnings toward college expenses were either women graduates or men who had trained under the G.I. Bill.

Earned Expenses	Engineering Graduates Per Cent	Non-engineering Graduates Per Cent
Yes	90.43	88.74
No	9.57	11.26
Most	33.75	31.68
Half	34.92	34.04
Small Portion	31.33	34.28

Only a small portion of those surveyed had held college scholarships. This may be explained partially by two factors:

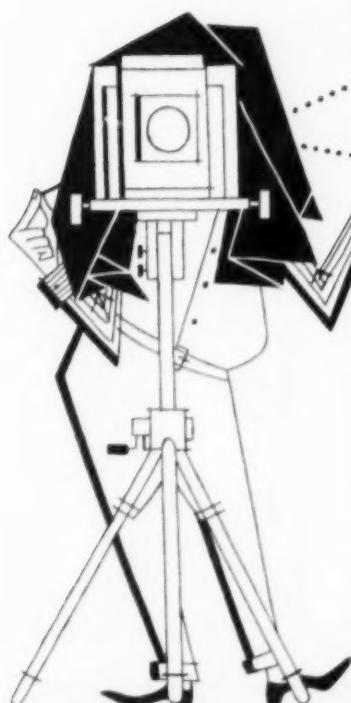
1. Many went to college at a time when scholarships were not considered as important or available as today.
2. Others entered college with veterans' benefits and thus

were not in the market for scholarship aid.

Those graduates who majored in science (both B.A. and B.S. degree holders) and now hold technical jobs with the Company had the greatest scholarship aid. The lowest percentage of scholarship holders was found among Business Administration graduates. For all respondents, the tabulation indicated 27.43 per cent with scholarship aid as opposed to 72.57 without such assistance.

Within the engineering group, 26.93 per cent indicated that they had some scholarship assistance during the college years. Over 30 per cent of the Chemical Engineers were in this category. Electrical Engineers had the lowest reported scholarship percentage—26.33 per cent.

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respondents was to earn the necessary money by part-time work. Seventy-two per cent of the non-engineering graduates favored this approach as opposed to 22 per cent suggesting that the student might borrow the money. Engineering Graduates were in favor of earning college costs, with 67.96 per cent voting for this method. However, more Engineering Graduates, 26.11 per cent, felt that borrowing could be used, if necessary, in conjunction with an earning project.

Many comments showed a depth of feeling over this point, usually expressing the hope that work might not be necessary the first year and borrowing, if any, be resorted to as a final possibility after the course had been fairly completed. Comments on the prospect of dropping out were almost unanimously in favor of continuing the education "by any means possible." Less than half of one per cent suggest-

ed that the student might drop out with the hope of continuing later after some period of earning time.

Overwhelming confidence in undertaking higher education was expressed time and time again in the comments added to the questionnaires, although basic disagreements arose over the specific course to follow. Most respondents favored college training as a very important factor in business success.

#### Many Would Return Again

*VIII. "If You Were Starting Life Again, Would You Attend the Same College and Take the Same Program of Study?"*

One of the best indications of personal satisfaction with the college attended or the course pursued is the answer to whether, upon reflection, the same patterns would be followed if one could live the period over again.

This question was asked not only because it provides a check against other statements about the college program, but because it also provides a yardstick for the analysis of the General Electric Corporate Alumnus Program. An unsatisfied graduate is less likely to contribute financially, even on a matching basis, to the college he attended.

Three out of four Non-engineering Graduates would return to the same college if they had the choice again. Of the dissatisfied quarter, the chief reasons seem to be:

1. The college attended was chosen because of low costs during days of financial hardship;
2. College was attended at night, and respondent would rather now attend during the day;
3. Respondent attended a large university and would now

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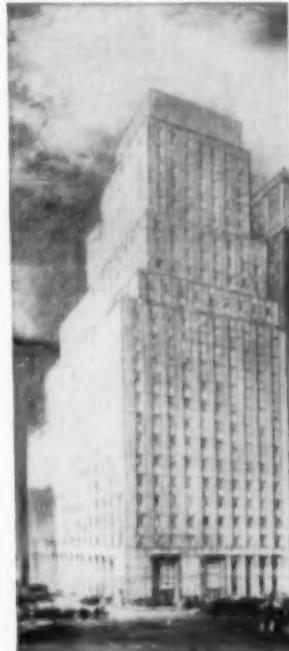
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- choose a smaller school with more personal environment;
4. Respondent attended a small school but now believes that better facilities might be found at a large institution;
  5. If a different program (now desirable) had been taken, another college would have been selected.

The most numerous reasons given were numbers one, three and five.

The greatest degree of dissatisfaction was found among those who had attended teachers colleges and received a degree in Education. Generally, they had entered these schools with a professional desire to teach and now, employed in industry, they believe a broader education would have been of more general and lasting value.

Engineering Graduates as a group were even more satisfied

with the educational institutions of their choosing. If the opportunity of choice were again available, 85 per cent would go to the same institution. Since a career in engineering requires considerable planning, it would appear that more care had gone into the selection of the college, thus creating an atmosphere of satisfaction.

#### **Non-Engineers Less Satisfied**

Non-engineering Graduates were far less satisfied with their course selections. Forty-six per cent of the replies indicated a different course would be pursued if the respondent might choose again. Business Administration degree recipients were most satisfied with the program they pursued; 57 per cent so indicated. Education graduates as a group were the least satisfied; 31 per cent indicated that they would now change their program of study if the opportunity were offered. Undoubtedly the same

reasoning applies to both cases. Business Administration graduates are apparently in work with the Company closely related to their program of study, whereas the Education majors find that industrial tasks call for things quite different, for the most part, from teacher preparation.

Almost 56 per cent of the Bachelor of Arts personnel would choose the same course again, and approximately 57 per cent of the Bachelor of Science majors would repeat their same course work.

Three out of four Engineering Graduates would choose the same course of study again. The most satisfied group was the Electrical Engineers, with over 80 per cent reporting a desire to repeat the same program. Mechanical Engineers, Miscellaneous Engineers, and Chemical Engineers followed in that order. Some replied that course varia-

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tions would be small, consisting in some cases of greater breadth in non-engineering courses.

The group as a whole indicated strong preference for a broad general educational background, amply fortified with English, Economics, and Mathematics. However, it was suggested many times that any good program in preparation for a business position should include as much training in science and engineering as possible. This reflects the Company complexion to a marked degree, but it is one major complaint of those who avoided such course work in their personal academic programs.

#### *IX. Comments Concerning the Liberal Arts.*

The prime purpose of undergraduate college education, according to many respondents, is not the acquisition of specialized information and operational tech-

niques. Rather, it was volunteered time and time again that the power to think and to analyze a wide range of problems successfully is the true goal of college education. Even if some consideration is given to the technical aspects of education, failure to produce an individual with these abilities is in essence a failure of the college program itself. The "whole man" concept seems quite strong in the thoughts of this group of employees.

The ability to get along well with others is also a factor that respondents feel should be stressed in the college curriculum. Those courses that aid the individual in the better understanding of his or her associates come in for high praise, because of the complicated interconnection in the lives of all of us. In this same vein, there was some emphasis upon the theory that

college should develop within the individual a burning desire to associate himself with religious, social, community, and service drives to aid in the improvement of living conditions for his fellow man.

The importance of concentrated study in the areas of English and Mathematics is also deserving of a final note. The fact that both fields have become indispensable to human expression and understanding is accepted by this survey group. Heavy concentration upon both areas of study was deemed essential in the shaping of tool courses for successful living.

In general, the broad background offered by the liberal-arts curriculum can be tailored, in the light of many comments, to the fashioning of a highly successful career in industry, particularly on the managerial or professional level.

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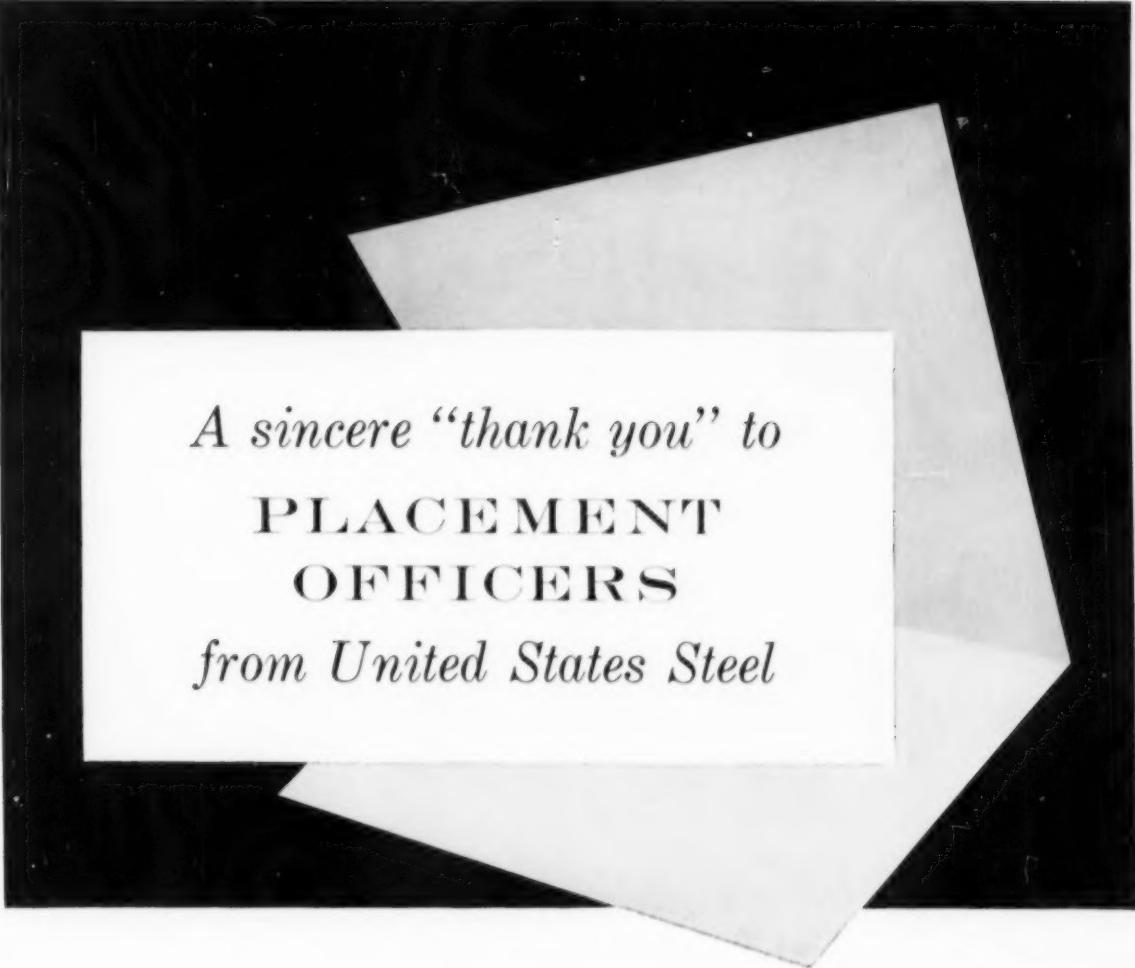
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